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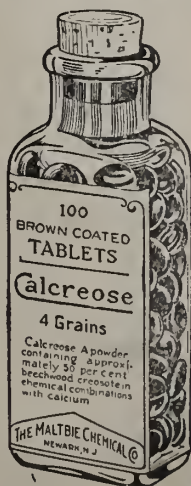
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FACTS EVERY DOCTOR SHOULD KNOW ABOUT THE MORTALITY IN APPENDICITIS.*

By A. MURAT WILLIS, M. D., Richmond, Va.
Professor of Surgery, Medical College of Virginia.

In a paper read before the Medical Society of Virginia at the meeting held in October, 1922, attention was called to the steadily increasing death rate from appendicitis. Since that time, more careful study of the subject has served only to impress upon me its tremendous importance and the necessity of having the medical profession take steps to attempt to reduce the appalling number of deaths annually chargeable to this condition.

Some twenty years ago, during the early days of my medical career, discussions of appendicitis and diffuse peritonitis were frequent in meetings of surgical societies. In 1908, however, Murphy announced the results of the application of his method of treatment of diffuse peritonitis; and this, according to many, closed discussion of the question, so that it is now tabooed at meetings of surgeons. Unfortunately, it would seem that we are far from having reached a satisfactory conclusion concerning appropriate treatment for the simple acute appendix or the more dreaded sequel, diffuse peritonitis, as will be readily appreciated from the following figures.

According to the vital statistics for the registration area of the United States, in the five-year period, 1901 to 1905 inclusive, the annual mortality rate from appendicitis was 11 per hundred thousand population. In the next quinquennial period it had increased slightly, annually being 11.2 per hundred thousand. From 1916 to 1919, it had risen to 12.4; in 1920, to 13.4; and in 1921, the amazing figure of 14.4 per hundred thousand population had been reached. Putting the population of the United States at 110,000,000, by the methods of treatment employed in 1901, 12,000 persons would have succumbed to ap-

pendicitis; by our "modern" or "improved" method, the number is actually almost 16,000; indicating that the "improvement" has resulted in the annual sacrifice of almost 4,000 lives.

Nor is this the only evidence that there is something radically wrong with present-day methods of treatment of appendicitis as widely practiced. In a series of patients observed during the years 1901-1905 inclusive and treated conservatively, Ochsner reported a mortality rate of 4.1 per cent from appendicitis. A prominent Virginia surgeon recently stated that the mortality in appendicitis was 10 per cent; and last year, Gatch reported a series of cases treated by modern methods with a mortality of 8.7 per cent.

It is appalling to realize that the annual deaths from appendicitis equal all from salpingitis, pelvic abscess, surgical diseases of the pancreas, spleen, thyroid, gall-stones, and ectopic pregnancy. The annual toll taken by appendicitis almost equals the combined total of intestinal obstruction, gall-stones, and gastric and duodenal ulcer. Impressive as is the actual number of deaths from appendicitis, the figure gains significance when it is recognized that this number is taken from the most valuable of our population. Much is said regarding the mortality from cancer; thousands of dollars are expended in attempts to discover the etiology of this disorder and other thousands in attempts to educate the laity. Cancer takes its toll from the aged, 80 per cent of the deaths from this condition occurring in persons over fifty years of age. Appendicitis affects chiefly those in the productive period of life, 80 per cent of the deaths from appendicitis occurring in persons under 50 years of age. These facts should convince any except those of us who are so blind they will not see or so deaf they will not hear that all is not well in the treatment of appendicitis.

A number of explanations for this remarkable and inexcusable mortality in this disease might be offered. In our humble opinion the most important factor, however, is a lack of

*Read before the Medical Society of Virginia at its fifty-fifth annual meeting, held in Staunton, October 14-17, 1924.

uniformity in the teaching of this subject throughout the United States. Great medical schools within a few miles of each other teach entirely opposite views. If the same difference of opinion existed among us in the handling and treatment of tuberculosis, diphtheria, lockjaw, etc., the same lack of progress would be shown to exist in those diseases. It is quite evident that this question will have to be settled by a commission composed of the leading surgical teachers of this country and a more or less uniform standard in the treatment of this disease will have to be promulgated. The time is approaching when our Boards of Health will investigate a death from appendicitis just as it does one from diphtheria today. If, in investigating a case, it is found that the mother or a member of a family has given home medication, consisting of cathartics, the dangers of this treatment should be explained to them and in this way protect others. If the family physician is responsible through carelessness or ignorance, his attention should be called to his failure. The surgeon already in reputable hospitals has to explain these deaths to his surgical colleagues.

A few comparisons are not out of place. The cancer death rate is six times that of appendicitis. Approximately 20 per cent of the cancer deaths occur before the age of 50; 80 per cent of the appendix deaths occur before the age of 50; up to the age of 45 there are a few more actual deaths from appendicitis than there are from cancer. Think of what this means from an economic standpoint. In appendicitis following operation and recovery the patient may expect permanent relief. In cancer following operation and survival the patient is not usually so fortunate. The appendix is an easily accessible organ with which we can safely dispense. A large percentage of the cancers are located in inaccessible and vital organs, to say nothing of the tremendous percentage of recurrences after removal of the disease in accessible organs.

If just a small fraction of the publicity that has been given cancer, tuberculosis and crippled children had been given to this subject the benefits would be proportionately as great.

In conclusion, I am perfectly aware of the much hackneyed expression that there are three kinds of lies; lies, damned lies and statistics, and that figures will prove anything. =Not-

withstanding this, the fact remains that appendicitis with its complications is one of the most serious conditions in surgery with an annual death toll of approximately 16,000 in a population of one hundred and ten millions. The percentage of increase has been about 1½ per cent per year during the past twenty years. It behooves the medical profession to become aroused to the gravity of this situation a little in advance of the legislators of this country.

DISCUSSION.

DR. STUART MCGUIRE, *Richmond*: I think Dr. Willis' paper on the "Increasing Mortality in Appendicitis" is a very timely and important one. I have recently called attention to the same subject in two different articles, but Dr. Willis has presented the facts more clearly and dramatically than I was able to do. I think the present situation is largely due to the failure to teach the facts with reference to appendicitis properly to students in our medical schools and to the failure to instruct young practitioners on the subject in our medical societies and in our medical journals.

Surgeons of my generation were born and bred in the briar-patch of appendicitis discussions. At that time a large part of the program of all medical meetings and a large number of pages of all medical journals were devoted to the subject. Later, there naturally came a reaction and for some years little has been said or written on appendicitis.

I think we should thank Dr. Willis for his paper because, unless something is done, the dearly earned experience of the past will not be transmitted to the doctors of the future.

I have recently had a demonstration of how little some of the best of our recent medical graduates know about appendicitis. Two years ago I added a new assistant to my staff. He was a man of unusual ability and had what would be supposed to be unusual educational advantages, as he had graduated in medicine at the University of Virginia and had spent a year as interne at Johns Hopkins Hospital. His first two weeks with me were very unhappy, as four or five acute cases of appendicitis came in and he absolutely failed to recognize the condition. The cases were so plain that the nurses would be making the preparation for immediate operation while he would be getting an elaborate history and ordering numerous laboratory examinations. He would follow these cases to the operating room in a somewhat critical spirit, because of what he considered failure to make a proper preliminary study. After he saw half dozen suppurating or gangrenous appendices removed, he frankly admitted he did not know anything about appendicitis.

I again congratulate Dr. Willis on his effort to revive interest in what to many of us is an old and almost exhausted subject, but which must be kept actively before the profession and public if we want to save lives which would otherwise be lost.

DR. J. E. RAWLS, *Suffolk*: I don't know of any subject that will impress the average surgeon as much as these cases. Several years ago I wrote a paper on "Time and Mortality," referring to the neglected cases of acute appendicitis that were operated on. One hundred and fourteen reached the hospital within thirty hours from onset, and there was no mortality in the one hundred and fourteen cases; sixty three cases came any time ranging from three

days to fourteen days, and out of the sixty-three cases eight died. Sometimes the pain had been localized a week before coming to the hospital. In this paper I attributed this to neglect at some point. The line of demarcation was the hospital door. There seems to be four classes who are responsible for this neglect before the patient is brought to the hospital: The neighbors coming in and advising the patient; then comes the family of the patient, who does not see the importance of the operation; then the patient himself, and then the family physician. It does seem to me that if you cannot reach the family physician, you should be able to reach the public. The public is becoming educated. About the first thing a patient asks now when he comes into the hospital is, "Doctor, did I get here in time?" They seem to realize that time really does figure in the results they expect to get. I believe if we would get this information in public schools and teach the ordinary symptoms of appendicitis, it would be a good plan. I knew a teacher in the schools in Norfolk to whom I gave a few symptoms of typical appendicitis. I saw her several months later and she said her room-mate had an attack, and she diagnosed it, and she was taken to the hospital and operated on in less than twenty-four hours.

I usually ask these patients if they have pain. They call it "indigestion," and they say, "Yes" "Where did it begin?" "In my stomach." "What part?" "Upper part." "When did it start?" "Yesterday, or last night." "Where is it today?" "On my right side." And I tell you, I haven't run across anything that will give a history of such a pain other than an attack of acute appendicitis. I really believe that you can diagnose fifty to seventy-five per cent of these cases over the 'phone. If you can get the public to realize that you can save fifteen or twenty thousand a year by making early diagnosis, you have done a great deal toward decreasing the present mortality in appendicitis. I believe if you make a mistake you had better make it in favor of the patient, by operating early, it will only be a matter of a little time and money lost. If you delay operation, it may cost the patient's life.

DR. J. SHELTON HORSLEY, *Richmond*: This is a very important paper and should be presented before a joint meeting of the Society. The attention of the general practitioner as well as the surgeon should be called to it. If we can get the general medical profession to understand the significance of the facts that Dr. Willis brings out and then have public opinion behind them, the mortality rate will be greatly reduced. It is impossible to save patients when they are neglected and referred to a surgeon in the late stages of the disease, when they are saturated with sepsis and are practically moribund.

DR. ———: I believe the suggestion made by Dr. Horsley is a good one. The surgeon has kept this information from the physician and I believe it should be brought to the attention of the general practitioner.

DR. ———: This paper has brought out the fact that early diagnosis and immediate treatment is very necessary, and I believe it should be talked about more, and this striking fact in regard to the mortality in appendicitis brought to the minds of as many people as possible.

DR. ———: I first want to thank Dr. McGuire for the information he gave us in a previous meeting in regard to the symptoms of appendicitis. I believe the paper he read at that meeting saved my boy's life. He had an attack one evening about

six o'clock and I told my wife I didn't feel at all comfortable about his condition and that night he had chills. We sent thirty miles for a surgeon and he came in at ten o'clock the next morning. The boy's temperature was normal, he did not have any tenderness of pain at all, you couldn't make him flinch. When the surgeon came he said: "I think you are unduly alarmed"; but I told him it was my boy and I thought something should be done at once. When he was opened up the fluid was cozing out and, I am certain, in a few hours the appendix would have broken. He had some nausea and vomiting, but no pain at all.

DR. A. M. SHOWALTER, *Cambria*: This matter has been very forcibly impressed on me. It has been my observation that, in order to help the patient, we often make the mistake of trying to relieve the patient of the pain without operation. I want to call attention to a case: I was called at two o'clock and was with the patient at four o'clock and advised an operation. He refused to be operated on, and wanted something for the pain and, when I told him I would not give him anything, he began to cry and I finally gave him a hypodermic of morphine. The next morning we operated and lost the patient.

I want to mention another case: I was called out at eleven o'clock one night to see a man who had a history of having dysentery for a week. That evening at eight he had taken a severe pain and when I got there his temperature was 103, pulse 110. I explained his condition to the family and they very bitterly opposed an operation and wanted me to give him something to relieve the pain, and I told them I would do it under one condition, and that was that they promise to bring him to the hospital in the morning. The next morning temperature was 98, pulse 110, he had no vomiting nor nausea and felt fine. There was a little tenderness and very little rigidity, and I told the family I could hardly believe it to be the same patient. We went in there and found the appendix tucked up under caecum and the end stuffed off, and there was a little pocket of pus.

It is my opinion that pain is one thing that drives the patient to the operating room, and, if we remove that, you put them in a position to neglect what should be done at once—that is, an operation. In other words, the indiscriminate use of narcotics for acute appendicitis cases has been responsible in my opinion for more deaths than perhaps any other known cause.

DR. MURAT WILLIS, *Richmond*, closing the discussion: Many of the papers read in the Surgical Section this morning should have properly been read in the Medical Section. I feel that it is particularly true of the paper I have just presented. We will never be able to lower the mortality in certain acute abdominal conditions without first reaching the great body of the profession and through them the education of the public. I feel that, if a number of medical papers were published in lay journals, a great deal of good could be accomplished. So much of the mortality in acute abdominal conditions is due to home medication, principally cathartics, and this can never be controlled until there is a thorough appreciation on the part of the mother and other members of the family that cathartics are absolutely contraindicated in the presence of abdominal pain; and, further, that no life was ever saved because of a purgative in the presence of pain, but on the contrary many lives have been lost through its administration.

THE EARLY DIAGNOSIS OF INTESTINAL OBSTRUCTION.*

By L. G. RICHARDS, M. D., Roanoke, Va.

The subject of this paper embraces a field so vast, being intimately associated with and having involvements with practically every organ in the abdominal cavity, that one could be easily led astray, were he not mindful of the more rational course and restrict himself directly to the title of the paper, "The Early Diagnosis of Intestinal Obstruction."

In all the domain of medicine and surgery there is no condition where an early diagnosis is of more urgent import. We may unguardedly, now and then, allow an appendix to go on to perforation without seriously endangering the patient's life; we may in gall-bladder conditions make a tentative diagnosis and await developments. We may even argue the question of a leaking gastric or duodenal ulcer, until Nature, for the time at least, saves the patient's life. But in the case of intestinal obstruction, an early diagnosis is all important. It may mean, on the one hand, a simple surgical procedure; on the other, a serious major operation under most unfavorable circumstances.

How are we to make an early diagnosis in intestinal obstruction? First, we *must* consider cause. We cannot intelligently draw conclusions or rule out this or that positively in a given case without thorough knowledge of cause and effect.

The cause of ileus has been classified by many authors. I shall mention the one suggested by Ashhurst: First, adynamic obstruction, that form due to bacterial toxins, resulting in paralysis of the muscular tunic of the bowel; also from lesions in spinal cord. Second, dynamic obstruction, chiefly due to lead poisoning. Third, occlusion by changes within the lumen of the bowel, such as fecal impactions, gall-stones or other foreign body; changes in the wall of the bowel, such as congenital malformations, or gradual occlusion by a tumor or constricting cicatrix. Pressure from outside by tumors or neighboring organs. Fourth, strangulation of intestine by peritoneal bands or adhesions; intussusception, volvulus and internal hernia.

Again, we classify intestinal obstruction as acute and chronic, bearing in mind that

chronic intestinal obstruction may become acute, whereas, acute rarely become chronic.

Symptoms.—What are the symptoms of intestinal obstruction? Text-books tell us they are well-marked, easily recognized. This I deny. They read alike: pain, vomiting, constipation, markedly increased peristalsis, visible in thin abdominal walls. We all know this is true in the majority of cases and the diagnosis is easy; but there is another class of cases where the picture is all wrong; where the absence of one or more cardinal symptoms leaves us in doubt. However, by keeping in mind cause and effect, and by the process of elimination, we may in the majority of cases make a sufficiently early diagnosis to save our patient.

Quite frequently it is difficult to determine its site, or to determine the nature of the obstruction.

According to Fitz, strangulation will be present in about thirty-five per cent of cases; intussusception thirty-five per cent, volvulus fifteen per cent, gall-stone eight per cent, stricture or tumors six per cent. He also states that acute obstruction is usually due to strangulation or intussusception, less commonly to volvulus.

In intussusception the patient is usually a child; marked tenderness, mucus and bloody stools make the diagnosis easy. In volvulus, the diagnosis is not so easy; the patient is rarely under forty years of age; onset, acute; distention, marked tenderness and rigid abdominal walls.

Fecal obstruction is usually chronic and found in older subjects; fecal vomiting occurs late, if at all; a mass can be felt along the distended colon; this, with history of case, makes diagnosis easy. Strictures resulting from syphilis, malignancy, tuberculosis or due to tumors, are chronic in nature, which can in due time be recognized.

There is another form of obstruction with which we have to deal quite frequently—adynamic ileus, the result of sepsis. We find it in acute toxic poisoning, where the intestinal muscularis loses its motor activity, and in lesions of the spinal cord.

Differential Diagnosis.—We must distinguish acute intestinal obstruction from acute enteritis with pain, intestinal paresis, tympany and vomiting, acute hemorrhagic pancreatitis, also acute diffuse peritonitis and

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1925.

other less important conditions. Again the question arises, how are we to make an early diagnosis in intestinal obstruction?

This paper will have served its mission if it carries home this one point, namely, that the patient's life is more important than the diagnosis, be it early or late; that with the means we have at hand today we should try to relieve our patient; if we fail within a reasonable time, our duty is clear—his abdomen should be opened and a positive diagnosis made later. The report of a recent case explains fully.

Mr. B., machinist, age 37, past history negative save colicky pains in upper abdomen, coming on at intervals of every few weeks, covering a period of about six months. These attacks had been diagnosed acute indigestion by the attending physician and relieved by large doses of salts. Patient retired feeling perfectly well; at five o'clock in the morning he experienced severe pain in upper abdomen. He took his usual dose of salts, but grew worse and was sent to the hospital. Consultation, which was demanded, resulted in delay. The symptoms as seen at this time were shock, severe pain—which was continuous—midway between umbilicus and ensiform appendix, temperature sub-normal, no distention, no increased peristalsis. Reflexes were normal. Urine normal. Consultation followed consultation: gall-stones was suggested as a possible explanation, gastric ulcer, acute pancreatitis; abdominal pneumonia *et cetera*.

Operation was performed at 7 P. M. The abdomen was full of a dark, bloody exudate; in the left hypochondriac region we found an hour-glass condition caused by a peritoneal band, thus explaining why, in previous attacks, large doses of salts relieved the symptoms. We had here a chronic condition becoming acute. Four and a half feet of dark gangrenous gut was resected. His condition was hopeless at time of operation.

It is far better to operate unnecessarily now and then, than lose a life, the result of delay.

507 MacBain Building.

DISCUSSION

Dr. ———: I think this is one of the most important papers that has been read at this session. I see this every day, almost, and I know the mortality is reckoned by the time from the onset to the operation. This is one thing that should be taught to the general practitioner. That is where the responsibility lies—with the one who sees the patient first. Life is more important than diagnosis, and an effort should be made at once to find the trouble.

DR. MURAT WILLIS, *Richmond*: I am very much interested in Dr. Richard's paper on the "Early Diagnosis of Intestinal Obstruction." In recent years I have made a very careful statistical study of the mortality in acute abdominal lesions, and this is one of the few abdominal conditions in which there has been a slightly decreasing death rate during the past ten years. This decreasing mortality, in all likelihood, is due to the prompt diagnosis, early surgical intervention and, in the more advanced cases, doing as little surgery as possible. Extensive operation in the late cases usually means disaster.

DANGERS OF FREQUENT AND UN-NECESSARY EXAMINATIONS PER VAGINAM DURING LABOR.*

By MILLARD B. SAVAGE, M. D., Norfolk, Virginia.

The larger maternity clinics gave statistics of a morbidity rate ranging from 5 to 20 per cent in confinement cases conducted under the most ideal and aseptic conditions. They have shown that puerperal sepsis increases directly in proportion to the number of vaginal examinations and other manipulations made during labor, which proves that there is always a definite risk and a real danger from vaginal examinations made during labor.

The average obstetrical case, when conducted in the home, at its best is not satisfactory in relation to asepsis, and every internal examination carries with it a potential danger of puerperal infection.

If the morbidity rate in obstetrics can be reduced to any degree by a limitation of internal examinations without increased danger in other ways to the mother or child, we should bend our efforts in the direction for that improvement. Far too many vaginal examinations are made without due consideration as to what complications *might arise*, which would require interference of some nature; and whenever an occasion for operative delivery does arise, it is a feeling of satisfaction to have a clean case rather than a potentially infected case upon which to begin the operation.

Polak and Beck,¹ in a study of 200 cases coming to Cesarean section, have shown the effect of vaginal examinations upon their morbidity rate. The morbidity rate for cases upon which abdominal and rectal examinations alone had been made was 28.8 per cent compared to 52 per cent in the cases which had been examined per vaginam. They also showed that the morbidity rate was reduced approximately half in cases which were examined in the hospital alone, compared to those examined out-

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

¹ Polak and Beck. *Surg. Gyn. & Obs.* 1922. P. 566.

side of the hospital and previous to admission. Their statistics concluded that early rupture of the membranes and hours of labor were factors which increased the morbidity rate, together with the greater factor of too frequently and carelessly conducted vaginal examination. The mortality rate in the same series of cases was 3.3 per cent in the clean cases, and 14.6 per cent in the potentially and frankly infected cases.

Polak² has quoted a record of 5,000 consecutive confinements which were attended by senior students in the Out-Patient Department of the Long Island College Hospital, of Brooklyn, in which there were no deaths from puerperal infection. No vaginal examinations were made and the progress of labor was watched by abdominal and rectal examinations. These statistics are significant of the fact that some of the danger of puerperal infection from too frequent and careless vaginal examination can be eliminated, and that such examination is not a matter of routine necessity. If graduate students are able to conduct a series of cases with only rectal and abdominal examination by which to judge the progress of labor, and can obtain this result, the average physician should in a like manner strive to equal their enviable record.

We have a regulation which governs the practice of midwifery, and it reads that, "Midwives are prohibited from making examinations by passing their fingers into the birth canal." A physician is trained sufficiently in asepsis for making internal examinations, but we are also familiar with its dangers which are great enough to cause us to hesitate in making them, and to reserve the examination for the unusual case, rather than to make them routinely.

Prenatal examinations are desirable and important because a diagnosis can be made in some cases, in which we can predict a slight prolongation of the labor because of various conditions, such as funnel pelvis, contracted pelvis, abnormal positions, twins, and fibroid uterus. These cases can be watched with a careful expectancy without the necessity of making frequent examinations in order to determine the cause for the arrest of labor.

It is the prolonged cases of labor which are examined most often, and these are the *very ones* in which the dangers of puerperal infection are increased. Approximately 25 per cent

of all dry labors are prolonged, particularly the primiparous, and frequent examinations in dry labors are the more to be avoided, because both premature rupture of the membranes and hours of labor are predisposing factors to the incidence of puerperal infection.

Where the membranes have ruptured prematurely, the acid reaction of the normal vaginal secretion and its bactericidal power is removed, because the gradual escape of the amniotic fluid substitutes an alkalinity which is said to favor the pathogenicity of the vaginal flora, and this has been advanced as a possible explanation for the greater frequency of puerperal infection with premature rupture of the membranes.

Pre-existing infection of the birth canal contraindicates vaginal manipulation, and cases may arise where a Cesarean section is indicated with an arrested labor which ordinarily would be delivered by forceps or version. In this case the danger of carrying the infection high into the uterine cavity would be very great, more so than with the Cesarean section. During a test of labor on this occasion, rectal and abdominal examination could be used to an advantage.

How can we obtain the necessary information concerning the progress of labor without resorting to the routine vaginal examination? There are many men who have become very proficient in the use of rectal and abdominal examination, and these men found out from experience that the percentage of correct diagnoses increased steadily with the use of this method. Lankford³ states two basic reasons for rectal instead of vaginal examination: 1. "It is safer for the patient," and, 2. "It is more convenient and time saving for the attendant."

By rectal examination, we can learn the condition of the cervix, the amount of dilatation, and the engagement or descent of the fetal parts. After a dilatation of four or five fingers, the fontanels and sutures are palpable, and one should suspect, if not diagnose, a prolapsed cord or placenta previa. Jegge⁴ has brought forward a method by which he determines the dilatation of the cervix by means of measuring the height of the contraction ring in finger-breadths above the symphysis. He states that the os is fully dilated when the ring measures four finger-breadths. The con-

3. Lankford. *Southern Medical Journal*, October, 1923.

4. E. P. Davis. *Progressive Medicine*, September, 1920.

2. Polak. *Gyn. & Obs. Monograph*. 1921. P. 74.

traction ring is found by palpation of the ridge where the thin elastic segment joins the contractile muscle of the uterine body. The diameter of the external os increases directly with the height of the ring and, when the contraction ring is not palpable above the symphysis, the external os will not be larger than a half dollar in size. We can keep close observation upon the fetal heart by means of auscultation, and complications with fetal distress should be recognized very early.

The location of the fetal heart sound is often helpful in that the point of maximum intensity moves lower with active progress in labor. During the latter stage of labor, the fetal heart sound usually becomes more distinct and is heard best very low upon the abdomen and on both sides directly above the symphysis. By combining the rectal and the external examinations, we should learn enough as to the progress of labor in the average case, and by this means we can reserve the vaginal for the more complicated cases, such as placenta previa, accidental hemorrhage and arrested labors. And whenever we do make the examination which is considered necessary, we should do it with the most complete aseptic precautions and with full realization as to the danger which it carries.

The following is a case report of a death following puerperal sepsis. The first stage of labor was very much prolonged, during which time frequent and unnecessary vaginal examinations were made in the home. After admission to the hospital, complications were found to exist which required intravaginal and uterine manipulations, which had to be done upon an already frankly infected case. This case prompted the writing of this paper.

Hospital Clinic Case: Age twenty-three. Married eight years. Para 6. Family History: Negative. Past History: Negative. Menstrual History: Negative. Obstetrical History: Four children living, ages of seven, six, four and two, respectively. One still birth in 1923; fetus was macerated. Was in labor several days. Patient had a miscarriage during latter part of 1923. Other labors were normal. Present pregnancy negative other than some edema of feet during the past month. Patient was estimated to be approximately at term.

On admission the patient appeared to be in very active labor. She stated that the onset of labor pains dated nine days previous to

hospital admission. During that time she had been attended in her home by a physician who saw her each day and examined her per vaginam two or three times each twenty-four hours. She had not felt fetal movements for over three days and the membranes had ruptured five days before coming to the hospital. She complained of very much pain, mostly through the lower abdomen. When examined she was found to be tender over the entire abdomen and the uterus was in a state of tonic contraction. Her temperature was 101.2° and pulse rate was 100. No fetal heart sound could be heard and no fetal movements were made out. Rectal examination was very painful. The head was dipping into the pelvis with two fingers dilatation, and the softening of the cervix was yet incomplete. No cause for the arrest of labor was determined at this time. Inspection of the perineum showed a bichloride dermatitis extending around the external genitalia and upon the inner surface of both thighs.

A number 5 Voorhees' hydrostatic bag was inserted under ether anaesthesia with $\frac{1}{4}$ gr. of morphia and 1/200 gr. of hyoscine as a preliminary. Five hours later the bag was expelled, and this was followed immediately by a precipitate delivery of the fetus, which appeared to be full term. The fetus was macerated and there was a foul odor present. Two hours later, the placenta was extracted manually after other methods of delivery had failed. A Bandl's contraction ring with its greatest thickness to the left and posteriorly was encountered when the manual extraction of the placenta was attempted. Sufficient relaxation of the ring in order to extract the placenta was obtained under deep ether anaesthesia, after which an intrauterine douche of warm saline and 2 per cent iodine solution was given.

At the termination of labor the patient's temperature was 105.4° and the pulse rate was 160. One hour after labor the temperature dropped to 103.4° and the pulse rate to 140. The patient appeared very toxic and was given 1,500 c.c. of saline subcutaneously.

First day after labor: During the night the temperature dropped below normal and the pulse rate remained up at 120. The white cell count was only 6,000, with 95 per cent of polymorphonuclears. The patient complained of increasing pain through the entire lower portion of the abdomen, and a slight spasticity of the recti muscles was noted. She was given 30 c.c. of a 1 per cent mercurochrome solution intra-

venously. Within thirty minutes the patient began to bleed freely from the uterus and the uterine cavity was packed.

Second day after labor: Patient was semi-conscious and the temperature had climbed to 103.5° during the night. Pulse rate became fast and irregular. Five hundred c.c. of blood was transfused by the direct method, but patient expired some hours later.

Abdominal autopsy revealed an empty uterine cavity and a purulent pelvic peritonitis. Gross section of the uterus showed areas of infection and necrosis involving the entire wall in many places.

Summary: The main points which were intended to be brought out in this paper are as follows:

1. Vaginal examinations during labor carry with them a certain amount of danger from puerperal infection even when conducted under the most ideal and aseptic conditions.

2. Too frequent vaginal examinations are made in prolonged and complicated cases, in which cases the danger from puerperal infection is very much increased.

3. The amount of information necessary concerning the progress of labor in the average obstetrical case can be obtained by rectal and abdominal examination.

4. Vaginal examination should not be a matter of routine, but it should be reserved for the unusual case, and the number of examinations should be reduced to a minimum and should be conducted under the most strict asepsis.

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DISCUSSION.

DR. L. M. ALLEN, *Winchester*: The subject of vaginal examinations is a very old one, but discussion of it is valuable because of the fact that they are being frequently, and, generally speaking, unnecessarily, employed. Diagnosis of abnormal conditions should be made before labor. It is seldom now that obstetric cases are seen for the first time when in labor. They usually come to the physician early, and all abnormal conditions should be recognized before labor begins when danger of infection, if vaginal examination is necessary, is not so great. The danger of vaginal examination has been thoroughly demonstrated. Generally speaking, the vaginal canal does not contain pathogenic bacteria. It is ordinarily safe from them unless they are introduced from without by the examining finger. I should like to emphasize what has been already stated, the absolute lack of necessity for vaginal examinations. In my own experience I have made vaginal examinations in only about one per cent of my cases, and even those who come to operation frequently do so without vaginal examination. Hands which have been properly educated in abdominal palpation can recognize everything which could be recognized by vaginal examination. Practically

everything except the amount of dilation of the cervix can be determined without it. Now, what does it matter whether the cervix is the size of a half-dollar, a dollar, or, as is sometimes said, two dollars! The progress of labor does not depend upon the dilatation of the cervix. If there is no other trouble and the uterine contraction is good, and it is as a rule, it is my experience that, unless there is mechanical obstruction, the uterine contractions will be effective. So, what difference does the size of the cervix make? All vaginal examinations to find this out are unnecessary. Practically everything recognized by vaginal examination can be recognized by abdominal and rectal examination. Dr. Savage brought out this subject well in his paper. I feel that it is very important.

DR. MILLARD B. SAVAGE, *Norfolk*: In closing, I wish to thank Dr. Allen for his kind remarks. I feel that if we can reduce the mortality rate from puerperal sepsis, which is estimated as high as fifty per cent of the total mortality from child birth, we will have done a great deal.

A STUDY OF THE ETIOLOGY OF HEART DISEASE IN VIRGINIA.

A Preliminary Report.*

By J. EDWIN WOOD, Jr., M. D.,
and
THOMAS DUCKETT JONES, M. D.,
University, Va.

Hoping to obtain a better impression of the causes of heart disease in Virginia, we started a clinical study of this subject at the University of Virginia Hospital one year ago. From October 1, 1923, to October 1, 1924, 150 cases of definite organic heart disease, coming through the medical wards and medical outpatient department of this hospital, were etiologically classified. A few private room cases also appear in this series. This does not represent the total number of heart cases occurring in this hospital for the year but a majority of such a number which we have seen personally and investigated by history, physical examination and laboratory methods.

Only the cases presenting the cardinal signs and symptoms of organic heart disease have been included in the study and the "nervous heart" and functional rhythm changes, including paroxysmal tachycardia, have not been considered unless accompanied by organic heart disease. The number of cases is not yet sufficiently large to iron out the errors in such an attempt but the personal study given each case we believe offsets this to a large degree and makes this preliminary report of some value at least in outlining a program for the prevention of heart disease in our State.

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.
From the Department of Internal Medicine of the University of Virginia.

The etiological analysis of the cases here presented is based entirely upon the classification of heart disease suggested by White and Myers.¹ This method is founded upon their own experience in the Cardiac Clinic of the Massachusetts General Hospital and upon the writings of Mackenzie, Lewis and Cabot. We will outline briefly the different groups into which our patients have fallen.

I. The Hypertensive group here includes the cases in which continued high blood pressure has caused cardiac hypertrophy. Congestive failure may occur when the myocardium becomes fatigued or when cardiosclerosis occurs with advancing age, or in the event of infection or added uremia.²

without other cause and occurring with proved syphilis.

V. Thyroid heart disease is characterized by cardiac hypertrophy often showing auricular fibrillation, not infrequently paroxysmal, occurring with chronic hyperthyroidism.

VI. There were three cases of congenital heart disease indicating by history and physical examination some cardiac malformation since birth.

The first table (Table I) indicates the number and percentage of the cases falling into the groups above described with sex, race and age tabulations for each division. A correction must be made in interpreting this table. For the two years ending June 30, 1923, the ratio

TABLE I.
AN ETIOLOGICAL STUDY OF HEART DISEASE IN VIRGINIA.

Groups	Occurrence in 150 Clinical Cases		White		Negro		Male		Female		Av. Age	
	No. Cases	% of Total	No. Cases	% of Group	No. Cases	% of Group	No. Cases	% of Group	No. Cases	% of Group	Male	Female
I Hypertensive.....	51	34	32	62.8	19	37.2	25	49.1	26	50.9	52	53
II Arteriosclerotic	40	26.6	30	75	10	25	30	75	10	25	68	58
III Rheumatic.....	34	22.6	29	85.3	5	14.7	19	55.8	15	44.2	30	32
IV Syphilitic.....	10	5.6	3	30	7	70	7	70	3	30	48	35
V Thyroid.....	4	2.6	3		1				4			40
VI Congenital.....	3	2	2		1		2		1			
VII Unclassified	8	5.3										
Total.....			99		51		83		67			

II. Arteriosclerotic heart disease is the resultant of coronary sclerosis and fibrosis of the myocardium, syphilis having been excluded.

III. The Rheumatic heart disease group represents the cases associated with a previous history of rheumatic fever, chorea or chronic tonsillitis and also the individuals with mitral stenosis though no definite history of previous rheumatic infection can be obtained.

IV. The Syphilitic group comprises the cases of aortic regurgitation and aortitis (with or without aneurysm) and myocardial disease

of white to negro admissions in the University of Virginia Hospital was as 3 to 1. With this correction our study indicates a greater incidence in the negro than in the white. This seems to be substantiated by the death rate from heart disease in Virginia for 1921 which was 172.6 per 100,000 negroes and 122.5 per 100,000 whites.³ A larger series than ours will be necessary to indicate accurately race incidence. Males preponderate slightly over females in the total series this being due to the distinctly greater number of males in the

arteriosclerotic group. There were certain other findings of interest in each group that can be briefly summarized here.

GROUP I.—HYPERTENSIVE.—The left border of cardiac dulness in all but five of the fifty-one cases in this collection was $1\frac{1}{2}$ cm. to $5\frac{1}{2}$ cm. outside the midclavicular line. In the expected five cases examination was unsatisfactory because of obesity. Two of the five were long standing cases of hypertension, two had congestive heart failure, and one presented a very large heart at autopsy. Of the fifty-one hypertensive cases twenty-four showed congestive heart failure and two gave definite histories of paroxysmal heart pain¹ (angina pectoris). All except eight of the fifty-one cases had systolic blood pressures of 170 mm. of mercury or greater, and diastolic pressures of 100 mm. of mercury or greater. Of the eight cases with relatively low blood pressures four showed previous manometer readings of 200 mm. of mercury or over, by our records, three had definite histories of previously high blood pressure figures, and one had pronounced cardiac hypertrophy at thirty-three years of age without evidence of syphilis, valve lesion or adhesive pericarditis and a blood pressure of 160 systolic and 92 mm. of mercury diastolic pressure. Clinically, forty-nine of this hypertensive group seemed to have normal rhythm (or often with premature beats) and two auricular fibrillation verified by electrocardiogram. Twenty electrocardiograms were recorded, two showing auricular fibrillation, one partial heart block not due to digitalis and one right bundle branch block, the remainder showing left axis deviation, ectopic beats or normal rhythm. Chronic nephritis was demonstrated in forty of the fifty-one cases, the remaining eleven cases having either "essential" hypertension or doubtful chronic nephritis. All of the cases had negative Wassermann reactions except in two instances in which this test was not done. These two had no history or physical evidence of lues. Without doubt a number of the cases in this group also had cardiosclerosis. We have, however, made an effort to include here the cases with cardiac hypertrophy due to long standing high blood pressure. Cardiosclerosis appears as an added affection often occurring as a contributory cause in the production of congestive failure.

GROUP II.—ARTERIOSCLEROTIC.—Twenty-four of the forty patients studied in this division presented a left border of cardiac dulness $1\frac{1}{2}$

cm. or more outside the mid-clavicular line, while the remainder were normal in size or slightly enlarged to physical examination. This collection showed a distinctly smaller heart on the average than the hypertensive group. Congestive heart failure occurred in eighteen cases, anginal heart failure in eight cases and a combination of both in two cases. Seven of those with anginal failure gave a conclusive history of paroxysmal heart pain (angina pectoris) and five of these were observed during attacks. Of the seven cases of angina pectoris all were whites. Although we have several times seen marked coronary sclerosis in the negro heart at autopsy, we can recall no instance of paroxysmal heart pain occurring in the clinical histories of these cases. This requires further study. A systolic blood pressure of over 170 mm. of mercury occurred once in Group II and only three cases had as high as 170 mm. of mercury systolic blood pressure. All Wassermann reactions were negative except three not taken and one positive. Two of the three not taken had auricular fibrillation with no evidence of lues and the third died in uraemia, at seventy-eight years of age, with no indication of syphilis. The one positive Wassermann in this group had auricular fibrillation before he acquired a primary luetic lesion. Clinically, there were sixteen cases of auricular fibrillation; ten of these being verified by electrocardiogram. Of the twenty-nine electrocardiograms recorded, ten were interpreted as auricular fibrillation, three partial heart block and five showed marked aberration of the Q R S complex, three of these five having right bundle branch block. From the foregoing data it will be seen that heart pain and abnormalities of cardiac rhythm are more common in this group than in Group I.

GROUP III.—RHEUMATIC.—Table II indicates that all but five of this group gave a history of previous rheumatic infection. All cases of valvular heart disease were diagnosed by diastolic murmurs typical of the lesion in question except of course the three cases of mitral regurgitation. Both cases of so-called rheumatic myocarditis, possibly better termed carditis, presented inversion of the "T" wave in all leads of the electrocardiogram in the absence of digitalis administration. One of these had congestive failure following two attacks of rheumatic fever; the other has been followed one year and has had acute pericarditis and two attacks of paroxysmal auricular fibrillation

in this time. Congestive failure occurred in eleven of the thirty-four rheumatic cases. Only one positive Wassermann appeared in this group, this occurring in a typical case of mitral stenosis without aortic regurgitation or X-ray evidence of aortitis. Two cases failed to have Wassermann tests recorded but both had mitral stenosis and a clear history of rheumatic fever. They were seventeen and twenty-four years of age respectively. Clinically, there were three cases of auricular fibrillation besides two cases of paroxysmal auricular fibrillation, all verified by electrocardiograms. The remainder clinically apparently showed normal rhythm or premature beats. However, out of nineteen electrocardiograms recorded, five were interpreted to be auricular fibrillation (already mentioned above), four partial auriculo-ventricular heart block, one transient sino-auricular heart block, one right bundle branch block, and two with abnormal "T" waves not due to digitalis. The remaining six showed normal rhythm or ventricular premature beats.

TABLE II.

Rheumatic Group III	No. Cases
History of Rheumatic Fever and Tonsillitis.....	21
Chorea.....	3
Chronic Tonsillitis.....	5
No Previous Rheumatic History.....	5
Mitral Stenosis.....	15
Mitral Regurgitation.....	3
Aortic Stenosis and Regurgitation.....	2
Aortic Regurgitation.....	4
Aortic and Mitral Disease.....	8
Myocarditis.....	1
Acute Pericarditis and Myocarditis.....	1

During the entire year of study only one case of sub-acute bacterial endocarditis came under our observation. *Streptococcus viridans* was recovered by blood culture repeatedly in this instance. The patient was afflicted with rheumatic heart disease and mitral stenosis of long standing before this fatal affection set in.

In the Syphilitic Group the Wassermann tests were all positive with one exception. This one gave birth to a child with congenital lues shortly before coming into the hospital for study. This, in addition to her rapid improvement under anti-luetic treatment, caused us to classify her aortic regurgitation as luetic in origin. There were eight cases presenting the signs of aortitis and aortic regurgitation, three of these showing X-ray evidence of aortitis and one an aortic aneurysm. The other two cases were diagnosed luetic myocarditis.

Three of the aortitis patients gave a history of high substernal pain, one of these dropping dead at the age of thirty-five. One of the cases of myocarditis had praecordial pain with radiation down the left arm on exertion. Three of the four electrocardiograms in Group IV indicated normal rhythm while one apparently showed auricular standstill with idio-ventricular rhythm, possibly due to overdosage with digitalis.

Four thyroid hearts have been studied. The history suggested long standing hyperthyroidism in each case and the basal metabolic rate was greater than +40 per cent of the normal in each. One had paroxysmal auricular fibrillation, one established fibrillation, and two normal rhythm, all verified by electrocardiogram. All gave evidence of cardiac enlargement by physical examination.

Three suspected congenital hearts have been here included. Two were thought to have some interventricular septal defect and one patent ductus arteriosus. In one of the first two and in the latter marked right axis deviation by electrocardiogram was present.

Of the eight unclassified cases four gave evidence of marked cardiac enlargement probably due to chronic adhesive pericarditis. Three instances of aortic regurgitation remain unclassified etiologically, as well as another case of unexplained cardiac hypertrophy with congestive heart failure.

COMMENT

Hypertensive heart disease is the commonest form of heart disease in this study. Fahr⁵ believes this to be generally true and estimates that 50,000 people in the United States die from this cause yearly.

We are unable to ascertain the incidence of rheumatic heart disease in other Southern states as no similar etiological studies of heart disease have appeared in the literature of the past five years. However, a recent study by Faulkner and White,⁶ with one addition by ourselves, shows the percentage of total medical cases of rheumatic fever or chorea entering representative hospitals of four Southern states. The University of Virginia Hospital shows a distinctly higher percentage of these two affections than three other Southern hospitals and a little more than half of that given by the Peter Bent Brigham Hospital, of Boston. Cabot's rheumatic heart disease group is about twice as large as ours as it should be if the in-

TABLE III⁶

Hospital	Years	Average Annual Medical Admissions	Average Annual Cases of Rheumatic Fever	Average Annual Cases of Chorea	Percentage of Total Medical Cases of Rheumatic Fever and Chorea
Peter Bent Brigham Hospital, Boston.....	1918-1922	2,480	22	9	1.3
Hospital of the University of Pennsylvania, Philadelphia, Pa.....	July, 1922 to July, 1923	1,518	10	7	1.2
Charity Hospital, New Orleans....	1920-1923	5,349	17	11	.4
Baptist Memorial Hospital, Memphis, Tenn.....	1920-1923	3,073	3.5	3	.2
University Hospital, Augusta, Ga.	1918-1923	2,500	1	1	.08
University of Virginia Hospital, University, Va.....	June, 1921 to June, 1923	1,384	4.5	3.5	.58

TABLE IV

Groups	Cabot ⁷ Massachusetts General Hospital, Boston		Hamilton ⁸ Boston City Hospital
	Occurrence in 600 Clinical Cases—Per cent. 1910-1914	Occurrence in 126 cases post mortem 1896-1905	Occurrence in 356 Clinical Cases—Per cent. 1920-1922
Rheumatic.....	46	42	58
Syphilitic.....	12	13	7.5
Arteriosclerotic.....	15	19	7.5
Heart changes—Hypertension.....			5.4
Nephritic.....	19	21	
Congenital.....	0	1	5.4
Doubtful.....	8	4	
Miscellaneous.....			16

cidence of rheumatic fever and chorea parallels rheumatic heart disease in Massachusetts and Virginia.

Some may think that our study should indicate a higher percentage of syphilitic hearts. A higher incidence would have occurred, we believe, if all the patients from the Department of Syphilology had been studied. We purposely avoided the invasion of any one department for our material and accepted only the cases coming through and referred to the medical service.

Table IV summarizes two other etiological classifications of heart disease and has been included here for comparison.

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DISCUSSION.

DR. J. M. HUTCHESON, *Richmond*: This paper is very interesting, in that it gives a useful idea of the etiology of heart disease here with us. We have been depending too largely upon the statistics derived from places where conditions are different from ours. The incidence of rheumatic heart disease, for instance, varies in different climates, being higher in the north than with us. I wish I could state what our experience in Richmond has been, but I have not the exact figures at my command. We classify a larger percentage as luetic cases. We have more of these cases, because of our larger colored practice, who show a higher incidence of syphilis

than the white. When we get a positive Wassermann and the etiology of the heart disease is a little obscure, we are apt to put the case down as luetic when often it is an arteriosclerotic heart with positive Wassermann.

We have been too easily satisfied with a diagnosis based on some anatomic defect, particularly of the valves, and too often content to recognize cardiac failure regardless of its cause. No diagnosis of cardiac disease is complete unless it includes a working idea of the origin of the trouble, the anatomic changes that have taken place with resulting functional derangement, whether or not the process is progressive and the manner in which it progresses. This means, of course, a careful consideration of etiology.

I believe there are many infections which we do not now think of as involving the heart, which really do, and these are responsible for cardiac failure more frequently than is thought. I recently saw two cases with undoubted evidence of structural involvement due to rather mild sinus infections. Any infection of the upper respiratory tract may cause cardiac damage. If we are to make any progress toward the prevention of cardiac disease it is necessary that we pay closer attention to its initial phases.

DR. T. D. JONES, *University*: I would like to add just a word further about the rheumatic group. Two cases I will cite. One, age thirty-nine, was admitted from our out-patient department with glycosuria. Her carbohydrate tolerance was almost normal. On routine examination, we found nothing other than a mild diabetes. A history of two attacks of rheumatic fever made us suspicious and we made an electrocardiogram, which showed a flat "T" wave in lead I and inverted "T" waves in leads II and III, the patient having had no digitalis. The patient came back in about a month with congestive heart failure. Another case was that of a girl seventeen years old. She had had rheumatic fever at five years and was apparently just recovering from an attack of rheumatic fever when admitted. A mid-diastolic murmur was heard over the apex of the heart by some and not by others. Electrocardiogram showed definite partial auriculo-ventricular block, not suspected clinically. The patient went out of the hospital with minute instructions as to method of living. I would like to impress upon everyone that in obtaining any routine history, we should get the facts as to whether there has been any chorea, tonsillitis or rheumatic fever and, if there has been, we should suspect rheumatic involvement of the heart.

DR. J. BOLLING JONES, *Petersburg*: In the rheumatic group we have had only five cases among members of the colored race. In the routine examination of applicants for the service in the first draft, comprising men from eighteen to twenty-one years of age, the examination of the teeth was stressed. Many men got out of the service because they did not have certain teeth. The poor negro did not get out at all for this reason, because a negro always has good teeth. It is a remarkable fact. We find in the mouth of practically every white man of this age a large percentage of defective teeth, but it is very rare to find any in the mouth of a colored man. Since we know that there is a definite connection between mouth infections, throat infections and heart disease, particularly in the rheumatic group, this probably explains why rheumatic hearts, as a rule, do not occur in members of the colored race. Probably this difference in the two races is explained, in so far as mouth and throat infections bear a relation to heart disease. Teeth decaying in early life

are especially rare in the negroes, and they are thus protected from rheumatism.

DR. WM. R. JONES, *Richmond*: What Dr. Jones has just said brings up a question deserving future consideration in regard to the rheumatic heart. We have made a study of rheumatic heart disease and conditions causing it in order to clear up the obscurity surrounding it. In the negro race we have a large percentage of heart disease. We have just heard that negroes have a small percentage of bad teeth. Of course we know the relationship between bad teeth and rheumatism. Our experience in this matter is apparently contradictory. The white race with a small percentage of heart disease has a relatively larger per cent, due to infection. In the negro race we observed many people engaged in laborious occupations. These are very subject to heart disease. Gonorrhoea is often the cause of heart disease in this race, and of course cases of aortic disease are often syphilitic. It would be wise to study the subject in relation to specific rheumatism.

DR. J. EDWIN WOOD, *University*, closing discussion: The term "rheumatic" seems to be somewhat confusing. I should like to repeat the definition of rheumatic heart disease already read. A study of the pathology of rheumatic fever by Swift indicates that heart disease is only one important manifestation of this infection and that while the Aschoff body is a characteristic finding in the heart muscle, similar focal lesions may be found elsewhere in the body. We do not know certainly the agent causing rheumatic fever, but there is evidence to show that it may be a streptococcus infection.

I agree with Dr. Hutcheson that we do not clearly understand acute infectious disease as a cause of cardiac damage.

NECROPSIES AS AN INDEX OF EFFICIENCY OF TREATMENT.*

By LOUIS B. WILSON, M. D., Rochester, Minnesota.

The physician in his professional work is called on to diagnose and treat two types of human ailments: those which do not threaten the life of the patient, and those which do endanger his life. In the first type, the physician, in his efforts to relieve pain, to restore the patient to health more quickly, and to prevent the development of chronic diseases of vital organs which may in the end either permanently impair the health, or through exacerbations endanger life, may often be aided in his diagnosis, and not infrequently in his treatment of the case, by laboratory procedure. It is not my purpose here to discuss these phases but rather to take up those considerations pertaining to the improvement of the physician's judgment in diagnosis and treatment in the second type of ailments, namely, those in which the patient's life is endangered.

Every physician, when he graduates from medical school, is equipped with a fair general

*Read before the Seaboard Medical Association of Virginia and North Carolina, December 4, 1924.

knowledge of the beginnings, progress, and termination of the important diseases of mankind. These are based on a working knowledge of the principles of anatomy, physiology, chemistry, and pathology. He has obtained his best working knowledge of anatomy in the dissection room, and of pathology, in the morgue, the museum, and the laboratory. He has his journals and his text-books by which he can extend his knowledge in all fields so far as is possible by reading. In most states, besides this scholastic equipment, he must also add a year of practical work in a hospital before he is permitted to practice medicine. During this year he has some experience in attempting to apply, with greater responsibility than during his undergraduate years, his knowledge of fundamental medical sciences to the diagnosis and treatment of disease. A large share of his attention must, however, be devoted to the art rather than to the science of medicine, that is, to ways of doing things rather than to the reasons for doing them. When he finally leaves the hospital and begins practice for himself, he is fairly well equipped for general practice in everything except the most important, namely, clinical judgment.

How shall we define clinical judgment? Everyone agrees that it rests on experience. But what are the elements of fruitful experience which result in improved judgment? Does it consist in reading the experience of other clinicians? Does it consist in listening to the clinical lectures of other clinicians? Or does it not consist almost entirely in learning from one's own experience? It is true there are rare individuals whose clinical judgment seems to be developed very early and after relatively little clinical experience. They have perhaps even unconsciously developed good judgment, as a puppy may learn to swim by being thrown into the water. Such rare persons pass among their fellows as geniuses with wonderful diagnostic intuition. The more one studies them, however, the more one is impressed with the fact that although their mental processes may be subconscious, they really are quick and careful observers of minute details which, unconsciously, they arrange in logical sequence to form the premises for their conclusions. Such geniuses are rare. The great bulk of us are compelled to improve our judgment, if at all, by conscious and painstaking effort. Fundamentally this conscious effort must be along the line of studying our errors.

Now, fortunately for us, and still more fortunately for our patients, the results of the great bulk of our errors do not immediately result in the death of the patient. Because of this, in many cases, we may never have the opportunity of analyzing our errors, unless in later years their results are brought to our notice either by our own renewed studies of the patient or, what is more unpleasant, by the not always friendly criticisms of some other practitioner to whom our patient has turned.

But in those instances in which we know or suspect that we have erred in diagnosis or treatment and the patient dies while still under our care, there is available the best opportunity in all our professional life for improving our judgment, namely, the opportunity to perform a necropsy and find out where and to what extent we have erred, if at all.

In the face of this line of reasoning, the logic of which will probably be admitted by everyone, why is it, that among so intelligent a body of physicians as the United States holds at present, necropsies are performed on the bodies of probably not more than 2 per cent of all the patients who die? In the first place, is it because of the great difficulty of obtaining permission for necropsies? In answer to this suggestion a few specific instances may be given. For the year 1920,¹ thirty-nine hospitals in Chicago reported to a special committee of the Institute of Medicine 12 per cent of permission necropsies from 4,868 deaths. In only six of these hospitals, the percentage of permission necropsies was above twenty. During the following year, 1921,² the same hospitals reported 16.5 per cent of permission necropsies and eighteen of the hospitals showed an increase in their percentage over 1920. In nine hospitals the percentage of permission necropsies was above twenty. This record seems to me to show what may be accomplished in a very large community by the increased interest produced by a central committee. Among efforts of single institutions the following may be mentioned:

The Philadelphia General Hospital in 1922³ reported an increase in its permission necropsies in three years from 10 to 51.3 per cent.

Bluestone reported in 1922⁴ that in Mount Sinai Hospital necropsies were performed in 56 per cent of all ward deaths, excluding coroner's cases, for the year 1921, and that during a six months' period, beginning March,

1921, permission was obtained in 64 per cent of the cases. This was in a hospital in which many of the patients are Jewish, a group who are notoriously averse to necropsies, and in which in 1913 the percentage of necropsies, exclusive of medico-legal cases, was 7.3 per cent.

In 1904, in the Mayo Clinic, the bodies of only 22 per cent of all patients dying were examined postmortem. This was the highest percentage which had been made from the opening of St. Mary's Hospital in 1889. In 1905, with the addition to the staff of a pathologist, a part of whose duty it was to secure permissions for necropsies, the bodies of 70 per cent of all patients dying were examined by permission. This percentage has never been materially lessened since 1905. It has gone in one year to almost 95 per cent. The usual annual percentage is about eighty-five. The total number of necropsies for 1923 was 592.

But high percentages of permissions for necropsies are not found in hospitals alone. Many physicians working alone obtain excellent percentages. One of the most remarkable instances of which I am aware is that of Dr. Hugh T. Montgomery,⁵ of South Bend, Indiana. Nearly fifty years ago Dr. Montgomery began practice in an isolated rural community in Elkhart County, Indiana. He asked for permission for a necropsy of the body of his first patient to die, and was almost mobbed for his temerity. He says, "I did not get that post-mortem, but I persisted and I got the third. They slowly became more and more frequent, until most of my families wanted to know and to see what had caused the death of their relative. Our Elkhart County Medical Society met once a month. I was always there, and with from three to five pathologic specimens. During the nine years that I spent in that village, far from a railroad, getting my mail every other day, I didn't stop growing in medicine. Any man can accomplish what I did, if he will be persistent, strictly honest, and sympathetic with the people with whom he is located."

It is the general consensus of opinion of pathologists whose duty it is to request permission for necropsies that almost all intelligent persons, with the possible exception of members of certain religious sects, can be brought to give consent for the examination of the bodies of their dead relatives by an honest and straight-forward presentation of the

reasons why an examination should be made. It is true that there are many minor factors, such as the interference of uninformed undertakers, religious scruples, racial prejudices and so forth, which are cited as excuses for the general failure to obtain permission for necropsies. When all is said and done, however, the plain truth, in most instances, is that necropsies are not obtained by physicians because they are not sufficiently interested in them to urge permission.

Now, physicians as a class are both honest and earnest in their desire to render the best possible service to their patients. If necropsies can contribute to the improvement of such service, why are physicians not sufficiently interested to urge permission for them? I take it this lack of interest has a number of roots which, unconsciously to the physician, have placed him in a position from which he finds it difficult to extricate himself. One of these roots I have no doubt is public opinion. It's a brave man who will suddenly go contrary to public opinion in matters intimately connected with the dead, and in this country there is no doubt that there is a vague public opinion which is adverse to countenancing necropsies. Such opinion, however, I believe to be so groundless that it can be readily changed by honest, straight-forward presentation of the facts to intelligent persons. Too frequently, alas, the physician does not know how to present the case for necropsy permission. He is likely to ask, if at all, for permission as a favor to himself. This attitude seems to me to be radically wrong. There is no objection to stating that you as the physician of course are interested in finding out more of the facts concerning the dead. But it also should be made clear that the desire for this knowledge is not a matter of personal curiosity, but that you may first apply it in the diagnosis and treatment of diseases of other members of the family of the deceased, and also in the care of other sick persons. Of course, this presupposes the necessity for admitting that the attending physician does not know everything concerning the dead whom he has attended. But this admission of lack of omniscience can be made tactfully and, indeed, in such a way as to create a strong prejudice in favor of the physician instead of against him. Most of all, however, the fact should be emphasized that the friends of the dead ought to know, and have a right to know everything possible concerning the con-

ditions of disease in their dead relatives. A resulting corollary of this is that the physician must truthfully and fully explain to the relatives after he has made the examination exactly what he has found. In our work at Rochester we believe that this is one of the largest factors in our continuing high percentage of permissions for necropsy.

The pathologic departments of the medical schools of the United States are quite as well manned as are the departments of anatomy, physiology, and chemistry in the same schools. But in all the fundamental departments, the teaching personnel is very meager. Relatively few of the medical schools control sufficient hospital material to allow, even with the most careful cultivation of permissions, a large number of necropsies.* In some institutions the number of necropsies available for teaching purposes is further reduced by coroner's cases, the examinations of which are not open to students. A fourth factor is the lack of students' time in our present over-crowded standard medical curriculum. These four factors, namely, lack of teaching personnel, lack of hospital material, isolation of coroner's cases, and especially lack of time in the curriculum, operate in many medical schools to reduce the total number of necropsies observed by the undergraduate medical student to a ridiculous minimum, while the number of necropsies in which the medical student has had an opportunity to take part is even much less. As a result, the medical graduate is almost wholly untrained in necropsy work, and hence lacks confidence in attempting to perform a necropsy, or to interpret the findings thereof. But this condition should not deter the earnest young practitioner who desires to render better service to his patients. He may make absurd mistakes in his early necropsy experience, but he will learn by these. Of course he should embrace any opportunity to work as an assistant to a good general pathologist. If he is wise, he will spend his first vacation study period attending necropsies and clinical-pathologic conferences in some large hospital. Men competent to make necropsies of considerable excellence are really not so few as we sometimes imagine. In the A. E. F., although in May, 1918, we could find in the seventy-two hospitals then in France

in which there were laboratories only twelve medical officers who would admit that they knew how to make a necropsy, we succeeded in finding before the armistice more than four hundred who could and did make good necropsies; that is, necropsies which, though in some cases not conducted in the most scientific manner, yet actually did yield information which was of very great importance to the other physicians and surgeons in the hospital organizations.

I suspect that the lack of interest in necropsies which obtains among physicians may in part be due also to the faith which many of them have come to place in the numerous and excellent physiologic and chemical tests which are now available for diagnosis while the patient is still alive. It might be supposed that the patient who has had all of the various laboratory examinations which are possible in a modern university or private clinic would have had the whole story of his ailments completely revealed to his physician. We are sometimes surprised that this is not the case, but we should not be so surprised. Very few tests are pathognomonic of anything, a fact which must always remain, so long as we are dealing with that complex organism, the human body. Rarely is any part alone sick. Rarely does any single lesion reveal itself unqualifiedly. Rarely is the immediate cause of death the only important part of a patient's ailments. The cocksure internist is the inexperienced internist, who is interested in making a diagnosis in a case regardless of the fact that many other essential or even more important things may ail the patient. It is difficult enough to get at the real facts of disease when the entire body may be made the subject of both gross and microscopic examination with the full clinical history of the patient and the results of all laboratory tests at hand to be used as a suggestive chart for discovery. How, then, can the clinician, who has only the clinical history, the tests, and the results of his relatively meager physical examination, expect to get at all the facts of disease? I cannot refrain from speaking a word of caution here concerning our overweening confidence in the results of the microscopic examination of tissue from the living patient. This can at best only give the information concerning the minute fractional part of the tissues of the patient which are possibly diseased, and such a part must be selected by gross appearance only. If the microscopic examination

*The Medical School of the University of Minnesota is particularly fortunate in this respect. In 1923 its Department of Pathology performed 849 postmortems. During the last six months of this year (1924), postmortems were made on 68 per cent of all patients dying in the University Hospital.

of a biopsy specimen is positive, well and good; if negative, we are fortunate if we are not led into an unfounded confidence that disease is absent, which may result seriously to the patient by our failure to proceed with necessary remedial measures.

I think I hear someone ask, "But is not all this reasoning fallacious after all? Are we not, in our diagnosis and treatment of patients, rendering a very highly accurate and effective service? In other words, have not most of our clinicians, without the aid of necropsies actually developed such good clinical judgment that their percentage of accuracy in diagnosis is very high?" I regret to say that where necropsy records are complete, this is shown not to be the case. You are all familiar with the reports published a few years ago by Dr. Richard Cabot,⁷ showing the distressingly large percentage of clinical errors made concerning 3,000 patients on whom necropsies were performed. Where a batting average of correct diagnoses is less than, or little more than 50 per cent, it might almost be considered guessing. Yet Cabot found such an error to exist concerning miliary tuberculosis, chronic interstitial nephritis, thoracic aneurysm, hepatic cirrhosis, acute endocarditis, peptic ulcer, suppurative nephritis, renal tuberculosis, bronchopneumonia, vertebral tuberculosis, chronic myocarditis, hepatic abscess, acute pericarditis, and acute nephritis. Wells⁸ has recently analyzed 3,712 necropsies, 1,000 of which were from his own records, and 2,712 from the necropsy records of Cook County Hospital for the years 1917 to 1922, with special reference to cancer. He found a total diagnostic error of 36.5 per cent. Thirty-seven per cent of all internal tumors were not recognized. Wood,⁹ pathologist to St. Luke's Hospital, New York, says, "Only the pathologist realizes how many patients with hysteria have brain tumors; in how many 'heart cases' there are no valvular lesions but nephritis, and that 10 per cent of all old persons die with unsuspected cancer." I think it may be asserted with modesty that the patients in the Mayo Clinic are as carefully and thoroughly studied as anywhere else in America, and yet more than half our necropsies show important lesions, though not necessarily the fundamental ones, which have not been mentioned in the clinical histories. Self-confidence in diagnosis comes from permitting the undertaker to cover errors. Is it any wonder that we talk of the efficient necropsy ser-

vice as an index of efficiency of diagnosis and treatment?

I doubt very much whether any internist, however skilled, can maintain a high degree of efficiency with a low percentage of necropsies. In this connection I am reminded of an incident. Early in the spring of 1918 I had the pleasure of spending the week-end with Sir William Osler at Oxford. I had not seen him for years, and Saturday night we talked until Sunday morning. He dwelt in his own keen, analytical way particularly on certain types of conditions which had been brought out during the World War, and promised to go over with me the next morning a number of his most interesting cases of this kind in the hospital. But when we registered at the hospital the next morning, the clerk said, "Sir William, there is a postmortem on one of your cases." Osler turned to me and said, "That settles it, our D. A. H. cases must wait. I never miss a postmortem."

In hospitals or other clinical groups, the most effective utilization of the information from necropsies is by means of the clinico-pathologic conference. In the early days of the Mayo Clinic when the staff was small, these were held at irregular intervals as soon as possible after each necropsy. As the staff increased, and it became more difficult to get men together, we settled down to weekly conferences. Except for a short interval during the war, these have been continuous since 1912. They are the most conscientiously attended meetings of any we hold, and I believe it is the opinion of all the members of the staff that they are the most fruitful in suggestions for improvement, not even excepting our very excellent lecture courses by eminent specialists from outside our staff. We insist on these conferences weekly instead of at longer intervals, because we feel that each case should be fresh in the mind of every man concerned. The clinical history, the laboratory findings, and the necropsy report are reviewed in detail. Specimens, if any, both gross and microscopic, are demonstrated. It is a closed meeting, that we may speak with "the brutal frankness of blood relatives." Not infrequently someone's pride is hurt, but it heals without being destroyed. It is not humility alone that we attain. There is often cause for congratulation. Most of all we learn to face the truth, and are inspired thereby to an overwhelming desire to improve.

Would that we might all have engraved in our hearts, if not in our meeting halls, the old motto, "*Mortui vivos docent.*"

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A BRIEF DISCUSSION OF DIGITALIS AND STRYCHNINE.*

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If a discussion of digitalis is to be limited to a few minutes, it is necessary to go rather fully into a few phases of the subject only, and to omit entirely or merely allude to certain other phases. The real difficulty lies in preparing a sufficiently brief discussion.

A full discussion would have to include:

1. The pharmacology.
2. A detailed enumeration of the official preparations and many of the non-official that are on the market, with a statement as to the relative value, including their cost.
3. An explanation of the methods of standardization.
4. A comparison of the methods of administration—by mouth, by rectum, in the veins or in the muscles—including the average time in which either method may be expected to show, first, any action; second, the maximum action; and the duration of this maximum effect.
5. The physiological action, whether on the heart muscle itself, the nervous system, the gastric mucosa, the blood vessels, other muscular tissues, etc.
6. The available evidence of such physiological action.

7. The indications for the use of digitalis and the contra-indications, and the advisable therapeutic combinations.

I. AND II. PHARMACOLOGY AND PREPARATIONS

Digitalis is grown in various parts of the world, one variety being about as good as another. A very good plant is grown near Richmond. The leaves or seeds are used by different manufacturing houses. Digitalis is very complex in composition, and from it several alkaloids or glucosides have been obtained, of which four might be mentioned: digitalin, digitalein, digitoxin and digitonin. It is marketed in the form of the leaves or seeds, a tincture, a fluid extract, an infusion and the alkaloids mentioned. The strength of digitalis varies enormously, and none of the official preparations can be used indiscriminately, that is without a physiological test having first been made. It would seem that the alkaloids or glucosides had a uniform strength, but this is not true, the French digitalin, for example, being eight times as powerful as the German digitalin, from which the American digitalin is generally made. This enormous variation in the potency of different digitalis leaves and seeds may be mentioned as an explanation of the unfavorable reports as to its action that have occurred from time to time. It is clear that the indiscriminate use of tinctures varying in strength to such an extent that a full ounce of one has the same strength as a dram of another must lead to confusion. There are numerous non-official or proprietary preparations on the market, the most common of which are digifolin and digipuratum (Ciba), digitan (Merck), digitol (Mulford), digalen (Roche), digilutin (Upshur Smith), digitalone and tincture digitalis No. 111 (Parke-Davis), and tincture digitalis (Squibb, Parke-Davis, Upshur Smith, etc.).

III. METHODS OF STANDARDIZATION

The methods of standardization are (a) the frog lethal dose method; (b) the frog systolic stand-still method; (c) the guinea-pig lethal dose method; and (d) the intravenous cat method. Without going into these at all fully, the principle of them all is the same; that is to say, they are physiological standardization methods, and after a tincture or any other preparation is manufactured, it is determined how much of this preparation given intravenously under absolutely constant conditions

*Read before the Staff of the McGuire Clinic.

is needed in order to produce death, or systolic stand-still, in a given length of time. This method of standardization must be used to determine the strength of any preparation of digitalis before it is put on the market, and we are absolutely dependent on the integrity of the manufacturing concern and druggist from whom we obtain our digitalis, unless we test it ourselves.

IV. METHODS OF ADMINISTRATION

Digitalis is commonly used by mouth, by rectum, in the veins, or in the muscles. The occurrence of such a great variety of preparations and indeed the development of preparations for hypodermic use, whether in the veins or in the muscles, is due to a misapprehension as to the effect of the administration of digitalis by mouth on the gastric mucosa.

In order to prescribe digitalis intelligently we should consider the time that must elapse before any effect may be expected after a dose is given, the time that must elapse before the maximum effect of any single dose is to be expected, and the number of hours or days approximately that this maximum effect will last.

With a properly standardized preparation these effects of digitalis therapy are subject to variation only in a manner comparable to the inconstancy of all other things in which the idiosyncrasies and individual variations of human beings have to be taken into consideration.

The earliest activity that can be expected of any quantity is on an average two hours. The maximum activity of any quantity that can be expected is on an average six hours. The duration of maximum activity is on an average eight days.

The most notable advance that has been made in digitalis studies in the last few years consists in the demonstration that no matter how digitalis is given a certain amount is necessary before full digitalis action can be obtained. Eggleston proved that this consists of .15 of a cubic centimeter to each pound of body weight in the average human being; that is to say, a human being weighing 150 lbs. must take 22.5 c.c., approximately 5 drams, of the tincture standardized as described above, before full digitalis action occurs. The Eggleston method consists in giving half the whole quantity at one dose instead of small doses at repeated intervals. If you give 1 c.c., the equivalent of 16 minims, every six hours, a pa-

tient must take digitalis for five and a half days before the proper amount is given, and it is quite impossible ever to thoroughly digitalize a patient if the interval of dosage is as great as twelve hours and the amount administered is no greater than 1 c.c.

It is well at this point to call attention to the size of a drop of tincture of digitalis. We are accustomed to thinking of a cubic centimeter and 16 drops as the same amount. With the tincture of digitalis, as indeed with all alcoholic solutions, this is very far from being the case, the average variation being about two to one. There is a bottle of the tincture of digitalis downstairs in our drug room from which a cubic centimeter was taken and the number of drops measured by several different droppers and pipettes. With the droppers the number of drops per c.c. varied from 34 to 45. With the ordinary pipette held at an angle of about 45° the number was 40; held erect the number was 52; with a volumetric pipette the number held at an angle of 45° was 68, and held vertically the number was 81. It is seen, therefore, that if you are giving hypodermically one of the proprietary tinctures, such as digifolin, 1 c.c. at a dose, and you wish to give the same dose by mouth, it must vary from 34 to 81 drops, depending on the dropper or pipette with which it is dropped.

The decision as to whether we shall order digitalis by mouth or in some other way depends practically only on whether or not there is already an existing nausea. Digitalis given by mouth or by rectum may be expected to begin its action in two hours, and to attain its maximum action in from four to six hours. In the presence of already existing nausea the rectal method may be employed. In the presence of an emergency where the action of digitalis inside of two hours is desired, some other allied pharmaceutic should be employed; preferably strophanthin. During the past year the Council on Pharmacy and Chemistry of the American Medical Association appointed a Committee composed of Canby Robinson, Paul White, Cary Eggleston and Robert A. Hatcher, to prepare a report for publication, which would set forth concisely the limitations of digitalis therapy and the methods of obtaining digitalis effects. Their report appears in the *Journal A. M. A.*, of August 16, 1924, and their conclusions that cover this part of my paper are as follows:

"The oral administration of digitalis in the form of the standardized powdered leaf, infusion or tincture meets every requirement of digitalis therapy, with the exception of those relatively infrequent cases in which immediate relief, that is, within two hours, is imperatively demanded, or when nausea or vomiting precludes the oral method. When the threatening condition of the patient demands immediate relief, and there is no contraindication for the use of digitalis bodies, strophanthin or crystallized ouabain should be injected intramuscularly or intravenously."

The use of ouabain or strophanthin is extremely dangerous in patients who have recently received digitalis or any of its substitutes. I, personally, am afraid of ouabain, and have never seen a condition in which strophanthin was indicated.

In spite of the eminence of the Committee referred to above, and the deference to which their report is entitled, it seems to me unwise to discard the hypodermic method of giving digitalis. There are entirely too many conditions in which both the oral and rectal avenues are closed at the same time. An already existing nausea is given as a contraindication to oral administration, but nothing is said of diarrhoea, nor indeed of the many local, anal or rectal conditions that may render the rectal method impossible. It seems wise, therefore, to be familiar with some preparation for hypodermic use, no matter how rarely we may need it. It is likely that the Ciba people are reliable and that digifolin is properly standardized. An ampoul of digifolin is equal in amount to 1 c.c. of the tincture of digitalis, or $1\frac{1}{2}$ grains of the powder.

A simple method of prescribing digitalis reasonably accurately may be worked out as follows: With a patient weighing about 150 pounds it is going to take something over a tablespoonful of the tincture to get a maximum action. Two measured drams may be given as the initial dose, then one dram every six hours for four more doses, then discontinue, expecting to get full digitalis action in about forty-eight hours. This should last about eight days. If further treatment then becomes necessary the amount given should not be over 1 c.c., on account of the fact that the response of a partially digitalized heart can not be so easily foreseen.

The amount of each dose may, of course, be

smaller provided it is understood that if the total amount given in eight days equals something over one tablespoonful you may expect to get the active effect of the whole amount at the same time. Failing to understand this fact led to the erroneous idea that digitalis had a cumulative action.

V. THE PHYSIOLOGICAL ACTION

The question to be answered here is, what does digitalis actually do that justifies or necessitates its use? This divides itself into the effect of digitalis on the heart itself, and the effect on the circulation. The effect on the heart itself consists in, first, delaying the impulse to contract as it passes from the auricle to the ventricle, thereby prolonging diastole; and, second, an increase in the force of each ventricular contraction. In addition to this, the vagus centre in the medulla is depressed; also the smooth muscle fibres in the arterioles are stimulated. This last effect is so insignificant with any amount that may be administered to a human being that it cannot be taken into consideration in digitalis therapy. This is the reason that digitalis is useless in surgical shock. Shock is a vascular phenomenon, accompanied by a marked fall in pressure. In the presence of a normal resistance in the arterioles digitalis may raise the pressure by its action on the heart. With marked dilatation and relaxation of the arterioles no cardiac effect sufficient to raise pressure is possible.

As to vomiting and the belief that at one time prevailed that digitalis was a gastro-intestinal irritant, there is no evidence that this is true. It does produce vomiting, but this is a reflex effect, from the heart to the medulla, back to the stomach by the motor fibers of the vagus, and occurs only after a quantity large enough to produce digitalization has been given.

Vomiting may be used as a clinical guide during the administration of digitalis. If a quantity, properly given, sufficient to produce vomiting does not—we will say for example—correct an arrhythmia, then that particular arrhythmia cannot be corrected with digitalis, and there is no use resorting to some other method of administration.

It has been stated that digitalis increases peristalsis. This cannot be denied, but evidence to prove that it is true is wanting, and it is believed that if there is any such definite physiological action it is a reflex act just as

vomiting is. This does not in any way preclude the use of digitalis to prevent gas in abdominal operations. The positive effect of increasing pressure in the splanchnic vessels and promoting absorption of gas by the blood stream explains its beneficial effect.

Digitalis accomplishes positive results as a diuretic, but only by increasing the speed of the flow of blood through the kidney and raising the pressure in the glomerules. It is often desirable when preparing a patient to undergo a serious operation, or to withstand the depression of a serious illness, such as pneumonia, to support the heart and circulation and protect them against these emergency conditions. In the adequate preparation of the heart digitalis is indispensable.

VI. EVIDENCE OF PHYSIOLOGICAL ACTION

The available evidence of the physiological action of digitalis will not be gone into at all, but will be dismissed with a statement that the evidence is satisfactory and conclusive, and sufficiently simple to be reproduced in any physiological laboratory.

VII. INDICATIONS FOR USE OF DIGITALIS, CONTRA-INDICATIONS AND ADVISABLE THERAPEUTIC COMBINATIONS

Digitalis is indicated in all forms of heart disease and deficiencies in the circulation in which the myocardium is unable without assistance to do its work, with the exception of paroxysmal tachycardia and heart block. Auricular fibrillation or flutter can be corrected, and complete arrhythmias of rate and force of the ventricles can be restored to normal rate and rhythm. As Dieulafoy says, "The heart is a gallant organ," and a heart muscle enormously dilated by disease or exhaustion, especially by exhaustion, may be restored to normal size and function by rapid digitalization, and may continue to do excellent work for many years. Clinically, digitalis is indicated in cardiac dyspnoea, chest pain on exertion, edema, cyanosis, congestion of the lung bases, liver or kidneys, ascites and hydrothorax. The diuretic action is far more conspicuous in patients with edema, ascites and hydrothorax than in those in whom there is no abnormal accumulation of fluid. There is nothing more graphic in the field of medicine or surgery than converting a bed-ridden, dropsical, dependent invalid into an active vigorous self-supporting producer.

The only real contra-indication to digitalis is heart block. Here it is extremely dangerous—that is, in partial blocks. Under the discussion of the physiological action the property of digitalis to delay the impulse as it goes from the auricle to the ventricle was mentioned. This is itself a partial block, and in those cases in which a partial block already exists, converting them into a complete block may cause death. It has been said that digitalis was contra-indicated when the "ox-heart" of aortic regurgitation is failing. This is not true, but it is true that there is not much hope of accomplishing anything. No attempt will be made to go very fully into the advisable therapeutic combinations any further than to mention the importance of rest, venesection, diet, limited fluids in the presence of dilatations or dropsy, morphine, purgatives and the mercurials, squills, theobromin, or diuretin (which is the sodio-salicylate of theobromin), and the nitrites.

In regard to strychnine, we have searched the literature, both clinical and physiological, pretty carefully, and do not find evidence that strychnine in a dose that a human being can stand has any direct effect upon the heart or the circulation. The effect of strychnine is as follows: It stimulates the higher portions of the brain; it facilitates the intellectual processes; it renders the sense of hearing, smell and sight more acute, but its most characteristic effect to stimulate the motor and sensory elements of the spinal cord.

The administration of strychnine, or, better, a tincture of *nux vomica*, increases the appetite, aids digestion, augments peristalsis, and is of assistance in causing a sense of well-being. In those who have a good appetite, a good digestion, normal peristalsis, and who feel well, the circulation is better than in those of poor appetite, poor digestion, constipation, and who are of a depressed spirit. In this indirect way strychnine improves the circulation.

SUMMARY

1. Digitalis is an instrument of unique value and precision in the treatment of diseases of the heart, and in disturbances of the circulation.
2. If digitalis is to be used in a quantity sufficient to have any very marked action in time or degree, a careful analysis should be made of cardiac disorders, and of the various

factors that may be contributing causes in disturbances of the circulation.

3. The method of choice for administration is by mouth.

4. A standardized tincture should be kept in stock in brown glass bottles containing one ounce, and the amount to be administered should be directed by measure and not by any number of drops.

5. A small number of suitable packages for hypodermic use, such as the digifolin ampoul, should be kept in stock.

SOME IMPRESSIONS REGARDING DISEASES OF THE THYROID GLAND.*

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In every case we examine for chronic illness, we should consider the thyroid gland as a possible cause of symptoms. All patients will be found to fall into one of three classes, either having normal secretion, under secretion, or over secretion of the gland. Fortunately, the majority of patients will not present symptoms of abnormal secretion, and disease of the thyroid can at once be eliminated. There are others in which the secretion is very obviously abnormal. A diagnosis of these can be made without difficulty. There are still borderline cases which require careful study if a proper diagnosis is to be made.

Let us briefly consider the secretion and function of the thyroid. According to Kendall and Plummer, the active agent of the secretion of the thyroid is thyroxin, and the results obtained by the clinical use of the compound proves that this is correct. The thyroid function is complex. First, it is necessary to normal life as it presides over metabolism. Second, it is closely connected with the other glands of internal secretion in the development and regulation of the nervous, circulatory and osseous systems.

Metabolism seems to be governed almost entirely by the thyroid and it is the estimate of the patient's basal metabolic rate that shows us very accurately the degree of thyroid function. Basal metabolism is the metabolism observed in patients while at complete rest eight to ten hours after food intake.

There are two general methods of estimating basal metabolism—direct and indirect calorimetry.

The former is absolutely correct but is not practical for clinical use and is employed only in experimental work. The latter is based on oxygen consumption or carbon dioxide elimination. The oxygen consumption method is simple and, checked against direct calorimetry, is accurate enough for clinical work. There is another test of thyroid secretion known as the Kottman reaction, based on the photochemical reaction of silver in the blood serum, which bids fair to be very valuable. Upon these two tests in conjunction with clinical symptoms, we should be able to group our patients with suspected secretory disturbances of the thyroid. Examples of the two extremes of thyroid abnormality are cretinism and exophthalmic goitre. The former will be discussed under the general heading "Hypothyroidism," and the latter under the general heading "Goitre."

Hypothyroidism is an insufficient thyroid secretion, congenital in the cretin, spontaneous, or the result of surgery. X-ray or radium therapy in the adult. Cretinism and other pronounced cases of hypothyroidism are easily recognized, but there are lesser degrees of insufficiency which must be watched for, or cases will be daily missed by many of us. Patients who are fat or show a tendency to obesity, those with coarse hair, dry skin, diminished perspiration, those who suffer with physical weakness and have mental fatigue after slight exertion and who have abnormality of sexual function should be carefully studied to see whether their symptoms are not due to diminished thyroid secretion. In proven cases proper therapy produces brilliant results. One should, however, prove his case and regulate the dose of thyroid extract or thyroxin by basal metabolism.

Crotti in his work on the thyroid calls attention to what he has designated *small thyroid insufficiency*. The metabolic rate in these cases likely would be within the bounds of normal, and only carefully watched thyroid therapy would prove the correctness or error of the diagnosis. This is a phase of thyroid trouble to be thought of and a cause of disease to be reckoned with. Many and varied conditions could be discussed here. Retardation of the healing of fractures, amenorrhoea, certain forms of dermatosis, such as acne, herpes and psoriasis, gastro-intestinal disturbances, lack of appetite, constipation, various nervous phenomena and disordered metabolism in general are noted in this condition. This train of thought, however, carries us into the present-

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day field of endocrinology and possibly the use of polyglandular therapy as prescribed by many physicians—a subject we should carefully approach and then only after more of the physiology of the various glands is known.

I now wish to discuss the thyroid diseases other than hypothyroidism and will do so under the general heading "Goitre," reminding you that by goitre we mean enlargement of the thyroid, and also that many of these patients have been hypothyroid cases at times, probably very many more of them than we would have at first suspected. Perhaps to no other disease can the term endemic be so appropriately applied as to goitre. It is a world-wide condition. Its prevalence and distribution in the United States and in our own territory interests us most.

The statistics of the Surgeon General's Office show that out of 2,500,000 men examined for military service in the recent World War, 20,000 had goitre. Of these 11,000 were rejected as unfit for service. The highest proportion came from the State of Washington—38.81 per thousand. The States along the Great Lake region showed the next greatest prevalence of goitre. West Virginia showed 12.41 and Virginia 7.37 per thousand. The average for the entire country was 7.47. The prevalence of goitre in the United States can be imagined if we remember that these figures are for men of military age and that goitre is largely a disease of women. While these figures are appalling, especially when we remember that in our own State most of the cases of goitres occur in the mountain section, yet they are small when compared with certain countries in South America and in Europe where, in certain places, the disease occurs in 80 per cent of the school children. The goitre question then is an international one, and standardization of the prevention and cure of the disease interests medical men of all nations.

As a general working basis, we classify goitre as follows: 1. Adolescent; 2. Simple goitre; 3. Toxic adenoma; 4. True exophthalmic goitre, and 5. Malignant goitre. This classification is, of course, subject to many modifications, but as a working basis has served us well.

1. The adolescent type of goitre is that seen in girls about the beginning of puberty and usually disappearing in a few years after menstruation is well established. In a certain number of cases, however, the goitre persists

and requires treatment in later years. I believe the enlargement in this type is due to a need of additional thyroid secretion at a developmental period, and that the swelling of the gland is an effort to supply the deficiency. Might we not consider this a form of hypothyroidism? A small percentage of these cases later show slight increase in their basal metabolism and are really mildly toxic after some months' duration.

2. Under the heading "Simple Goitre," we place the cystic, colloid, the hypertrophic glandular and the non-toxic adenoma. These are the ordinary simple goitres which are familiar to all of us. They do not cause toxic symptoms nor are they of the hyposecretion type. Many develop during puberty, pregnancy or the menopause, the time of a woman's life when an increase of iodine is needed, and the thyroid has enlarged to supply the deficiency. Others have appeared when there was a temporary iodine insufficiency at times other than those just mentioned. The simple adenoma are congenital. They are of various sizes, single or multiple, and are of the kind that may develop into the toxic type later in life. Patients with this type of goitre seek relief because of pressure symptoms or because of unsightly deformity or because their family physician has warned them of the possibility of it being an adenoma and becoming dangerous at some later period in life.

The toxic adenoma type and exophthalmic goitre have until lately been called exophthalmic goitre or hyperthyroidism and no attempt at differentiation has been made. Plummer first called attention to the difference in these two types of hyperfunction goitre, and this differentiation meets with the approval of many physicians, although there are some men interested in goitre work who do not agree with him. We feel that there is a distinction, and while the distinction is not always easy to make, a proper diagnosis and differentiation leads to more accurate prognosis and better curative procedures.

3. The toxic adenoma type of goitres are seen in patients usually in middle life or older who have had a goitre present for a number of years. At the Mayo Clinic the average time after the appearance of goitre before the development of toxic symptoms was sixteen years: in our cases at St. Luke's Hospital the average time was twenty and one-half years.

The symptoms of toxic adenomatous goitre

are nervousness, rapid heart, coarse muscular tremors, but no bulging of the eyes. Gastro-intestinal disturbances are not so frequently seen. There is a loss of weight and an increase in basal metabolism. A distinct goitre is present which is usually irregular in outline, and the presence of a tumor or tumors in the gland can frequently be diagnosed. These cases are not so acute in development, are more amenable to treatment and are cured more quickly and more permanently than the exophthalmic type. If iodine is given to a patient with simple adenoma in sufficient quantity, symptoms of toxic adenoma can be almost exactly reproduced. This, however, is not the case with true exophthalmic goitre. The disease cannot be re-produced by the use of iodine.

4. The exophthalmic type of goitre appears in young people, the average age being twenty-two years in our cases. It generally develops in patients who have had a small symmetrical goitre which has been present for only a short time, the average time in our cases being eleven months. The symptoms are tachycardia, fine muscular tremors, exophthalmos, increased basal metabolism, loss of weight, and frequently diarrhoea or other gastro-intestinal symptoms. This type of hyperthyroidism is, of course, amenable to treatment and entirely curable, but they do not recover with the same ease and rapidity, and I doubt if they are ever as stable people as the cured toxic adenomatous type.

The diagnosis of toxic goitre is not often overlooked by physicians who carefully study their cases. The mistake that is now being made is to call too many nervous patients with rapid heart action *goitre patients*. There seems to be an increasing number of cases who have what might be called "autonomic imbalance," "effort syndrome," or other symptoms of the neuro-circulatory system, who are sent in with a diagnosis of goiters. Some of these patients have a simple goitre, others an indefinite enlargement of the neck; hence a differentiation from true toxic goitre is not always easy. It is certainly very important that an accurate diagnosis should be made and that the thyroid of people be not destroyed, either by surgery or X-ray, unless they suffer from thyroid disease. I believe that basal metabolism studies, carefully and repeatedly made, combined with sufficient experience in observing goitre in patients, is the best way to differentiate them.

5. The last type, malignant goitre, is said to constitute 2 per cent of all goitres occurring after middle life. This percentage is higher than we have found, but cancer of the thyroid is not a rare condition. It metastasizes early, being especially likely to develop in the spine, and is as incurable as cancers seem in other vital regions of the body.

I have briefly outlined the different types of goitre in order to discuss the treatment of each separately. The treatment of goitre begins with its prevention. As previously stated, it is believed that there are periods in the life of an individual when an increase of iodine is needed, and one of these is during pregnancy. Pregnant women living in regions where goitre is endemic, especially if they have goitre themselves, should be given small doses of thyroid extract or some iodide salt. The benefit may be two-fold; it may prevent goitre developing in the mother, it may prevent an existing goitre from enlarging or becoming toxic; and, finally, it may prevent the child from having congenital goitre. It often would be advisable for families in whom goitre is prevalent to change their environments by moving to another locality where in a few generations the disease would likely disappear. This is impracticable except for the well-to-do, and even then the desired result might not be accomplished because goitre is endemic in such a large region of the country.

The prophylactic treatment suggested by Marine has given good results. He advises the administration of sodium iodide in doses of two grains daily for ten days, this period of the treatment being given twice each year. He found in checking up school children and comparing the incidence of goitre in those who had been treated and those who had not been treated that there was marked difference in favor of the ones treated.

The proper treatment of a patient with goitre will depend on the type of goitre present. The treatment of the adolescent type is essentially medical. I have seen a number of young girls who have had their thyroid removed for slight enlargement in whose cases surgery was not necessary. The enlargement in an adolescent goitre is compensatory, due to the demands of puberty, and the proper administration of iodine will effect a cure in the majority of cases. Most of these cases get well if let alone. The few that do not get well can be treated surgically later in life if necessary.

Patients with simple or non-toxic goitre seek relief because of pressure symptoms or because of unsightly appearance of their necks or because they have been told by their doctor of the possibility of toxic symptoms developing later in life. The treatment of this type of goitre is both medical and surgical. Medical treatment is especially successful in the parenchymatous form of thyroid hyperplasia seen at the time of pregnancy and the menopause. A diffuse colloid degeneration, when the latter is not too far advanced, may respond to iodine. There is also a compensatory hypertrophy associated with the numerous forms of cystic and nodular goitres which must be regarded as an attempt of nature to compensate for the lost function of the degenerated portion of the gland. These also respond to treatment in so far as the hyperthyroid part of the gland is concerned. The cysts are not actually made smaller but the total diminution leads one to think this is the case. Medical treatment should be tried in the parenchymatous hyperplasias, and results may be expected in some of these forms of simple goitres. Medical treatment, however, has its limitations. Fifty per cent of this type of patients are not benefited or are only slightly improved, and there is about 75 per cent relapse in the improved cases. So, when we advise medical treatment, we must keep the patients under careful observation. I am convinced a good many simple cases will be converted into the toxic type by the indiscriminate use of iodine and thyroid therapy.

Simple goitres can be easily and safely cured by operation. Surgery often becomes imperative to relieve the pressure symptoms and is good prophylaxis in the adenomatous type to prevent the occurrence of toxic goitre later in life. In doing an operation for simple goitre it is important to know the location of the enlargement. Some goitres are substernal and are removed with much difficulty and danger. Know the type of goitre and remember when cysts are present there is also usually compensating hypertrophy of the normal part of the gland. In these cases, do not take out too much. Patients may have barely secretion enough to supply their needs and your scalpel may convert them into a state of hypothyroidism.

The treatment of the two types of goitre causing hyperthyroidism is the greatest problem of thyroid disease, and there has been and

still is much diversity of opinion on the subject. The only class of medical people whose opinion is unanimous is a group of surgeons who by long and patient work are able to report a large series of cases operated on with low mortality and high percentage of cures. Personally, I consider all toxic goitres surgical. Some cases get well under medical treatment, some are improved by use of X-ray or radium therapy, but the results secured by operation are so gratifying that I believe surgery is the method of choice in handling these patients.

Each toxic case of goitre must be studied individually to ascertain, first, if it is a toxic adenoma or true exophthalmic goitre; second, just how sick the patient is and how much surgery he can stand; and, third, what procedures are necessary to make the operation safe. The plan we follow in all types of toxic goitre is as follows:

The patient is confined to bed. A complete history is taken and routine physical examination made, especial attention being paid to teeth and upper respiratory tract. Basal metabolic tests are made at regular intervals. Blood examination, including Wassermann, urinalysis and such other laboratory tests as seem indicated, are ordered. Temperature and pulse rate are recorded every four hours. After a few days' observation of the patient, if we are convinced the case has only a mild or moderate degree of thyroid toxicosis, a partial thyroidectomy is done in the operating room under ether anesthesia. The operation in toxic cases consists in removing the greater part of both lobes and the isthmus of the thyroid, leaving a strip of thyroid gland attached to the posterior capsule on both sides. Gentleness and rapidity of operation add much to the patient's chance of recovery.

If, in studying a toxic case, it is found that the patient is markedly toxic, additional precautions are necessary. These are the cases that give us most concern and the ones in which the surgeon must divide the operation into several stages, doing only so much as the patient's condition will permit. In severe toxic goitre the procedure is as follows: Rest in bed until the patient is in good condition or until it is demonstrated that further rest will not be of benefit. The heart and circulation are carefully studied. Repeated basal metabolic tests are made to ascertain, if possible, whether the patient is on the ascent or descent of the disease. It is much better to operate

upon a patient with a high metabolic rate who is getting better than on one with a moderate rate who is getting worse. Icebags and digitalis are used and, if the case is a true exophthalmic one, iodine in the form of Lugol's solution is given three times daily according to the method of Plummer. The actual way in which iodine benefits these cases is not definitely understood. It is a fact, however, that it does bring down the pulse rate and reduces the metabolism of these patients and makes them in better condition to stand the operation.

Wilson intimated in a recent article that the secretion of the thyroid in a true exophthalmic case does not contain normal thyroxin but an imperfect or incomplete form of thyroxin which is likely highly toxic. There is difficulty in the manufacture of synthetic thyroxin because the iodoxy radical is hard to combine. This may also be true in the secretion of the thyroid in exophthalmic cases. It is possible that the administration of iodine may convert the exophthalmic case into the toxic adenoma type. Lugol's solution must be used carefully in these cases, as it has not been tried out over a long period of time, and we do not know what its ultimate effect will be. In a personal communication from Dr. Plummer, he states that a paper is about to be published on the use of Lugol, the appearance of which will be eagerly awaited.

In some of the severe cases of exophthalmic goitre, patients are nervous and apprehensive in regard to an operation; others look forward to an operation as a means of cure and are anxious to have it over. If patients dread the operation, the plan of "stealing the gland," suggested by Crile, is often employed. The patients are told that an inhalation treatment will be given them to prepare them for operation. Every day at a fixed hour a hypodermic of sterile water is injected and then they are given enough nitrous oxide gas to produce unconsciousness. They get so they look forward to the treatment and often enjoy it. When the day for the operation arrives at the accustomed hour they are given a hypodermic of morphia, put to sleep with gas, and transported to the operating room without knowledge that the hour of the dreaded ordeal has arrived. There are some cases who are too ill to permit being moved from their rooms or taking a general anesthetic, and these patients are operated on in their beds under local anesthesia.

In the severe cases, we remove the major por-

tion of the gland, for we believe the increased activity of the portion left in is often responsible for acute post-operative reaction. Many of the wounds are not sutured, but are left open for drainage and packed with flavine gauze. Closure is effected twenty-four or forty-eight hours later under local anesthesia. We have not done many ligation operations for toxic goitre, although many excellent men advocate their use. The practice advised is to tie first one superior thyroid and later the other, and then remove a part of one or both lobes of the gland according to the condition of the patient, and still later close the wound. Patients thus treated have four or five operations before the work is completed. By dividing the operation into stages, the patient is able to withstand an amount of traumatism which would prove fatal if done at one time.

Patients of the severe exophthalmic type are dangerous risks unless you put them to bed and keep them under treatment long enough to regulate the heart action, promote nutrition and stabilize the nervous system. The management of these cases, the decision of when and when not to operate, and the judgment necessary to determine how much or how little to do, imposes a terrible responsibility on the surgeon. This should not be the case, because the problems would not arise if a diagnosis had been made earlier or the case referred to the surgeon sooner. The longer we wait before an operation, the higher the mortality climbs. All of these bad cases have been under someone's treatment while they are getting worse, and they would have been very safe cases if operation had been performed earlier. The time to remove the gland is the time the diagnosis is made while the heart and nervous system are intact.

The treatment of goitre, especially the toxic goitre, should not end with the operation nor when the patient is dismissed from the hospital. These cases should be under careful and intelligent medical care for six months to one year, or longer if necessary. Rest and quiet should be advised, excitement avoided, diet regulated and the patient put under the best possible hygienic conditions. The results of surgery are indeed brilliant, yet all cases that survive operation are not cured. There is still a percentage of those who are only improved and a small percentage who are unimproved. These cases are limited to the exophthalmic type.

The usual causes of failure are delayed operation, too much or too little gland removed, and neglected post-operative treatment. In some cases failure is unexplainable, the original cause of the disease being wrapped up with the sympathetic nervous system and other glands of internal secretion and not satisfactorily understood.

I would like in conclusion to emphasize the following:

1. Early diagnosis and proper classification of all types of goitre should be made.

2. Never operate upon adolescent goitre until time shows that the goitre is permanent and medical treatment has failed.

3. Non-toxic adenomata should be removed to relieve pressure symptoms and prevent conversion into the toxic type.

4. Individualization of each toxic case, early diagnosis and careful preliminary treatment, and sound surgical judgment in carrying out operative procedures are essential.

REMARKS ON THE FEEDING OF INFANTS AND YOUNG CHILDREN.*

By I. P. BATTLE, M. D., Rocky Mount, N. C.

When we consider to what extent pediatrics as a distinct entity in modern medicine is dependent upon nutrition in early life, it is surprising to find how comparatively recent it is that artificial feeding of infants was placed on a scientific basis.

In Condie's book on Diseases of Children, a book of 750 pages published in 1858, the subject is dismissed in five pages. He gives the mortality rate for England of babies "brought up by hand" as varying from forty per cent to ninety per cent, and advises as the best method of infant feeding, cow's milk "diluted with nearly an equal quantity of warm water and well sweetened with the best loaf sugar."

In Tanner's book of 1866 less than two pages are devoted to the subject. His only formula is milk diluted with one-third water or barley water slightly sweetened. He advises, where expense is no consideration, to give, instead, asses' or mares' milk.

The Germans even at that early date were experimenting with fixed substitutes for mother's milk; that is, a food that would do for all babies. They have never been able to entirely get away from this idea.

In 1869 Phillipp Biedert called attention to

the difference in the casein of cow's milk and mother's milk. His work marked an important step toward scientific infant feed. Biedert, however, advocated a definite formula to make cow's milk conform to a diluted mother's milk.

In 1882 John F. Meigs, working with his son, Arthur V. Meigs, announced that mother's milk rarely contained more than one per cent casein. This was about one-half the figure at which Biedert had placed it.

Throughout the seventies and eighties but little general progress was made, each man of prominence recommending some special formula as the best for feeding normal infants.

To Thomas Morgan Rotch, perhaps more than any other, we owe the placing of infant feeding on a scientific basis. Graduating from Harvard in 1874, he was made its first professor of pediatrics in 1888. In 1891 he founded the first milk laboratory, the Walker-Gordon in Boston.

The first edition of his text-book was published in 1896. The second edition, although now twenty-three years old, contains a clear and thoughtful presentation of the subject of infant feeding, and a physician of the present day would be on safe ground in accepting it as his guide.

During the past twenty years not much has been added that is helpful in the feeding of the normal infant. Hobbies come and go. The manufacturer puts out new proprietaries or changes old. Special methods to meet certain conditions are advocated, but the one essential in the artificial feeding of infants is still clean cow's milk.

On the other hand, the studies of recent years have served to give us a conception of the cause of phenomena observed years ago. Thus, the vitamins, although unknown chemically, are fairly well understood in their relation to life. I might mention, also, the more recent studies of the elements calcium and phosphorus, particularly in their relation to rickets.

My interest in infant feeding is born of the responsibility that anyone doing general practice assumes. We can not all be specialists, nor is it fitting that we should be. By far the larger number of artificially fed infants must be cared for by the man in general practice and not by the specialist. Therefore, we should all at least know the food requirements of healthy infants. It should be the aim of the general practitioner to prevent as far as possible the difficult feeding cases by starting the infant on

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, in Rocky Mount, N. C., December 2-4, 1924.

the right food. He should encourage by every means possible the production in his community of the highest grade milk. Perhaps very few if any of the cities in our State could justify the commercial existence of a milk laboratory, but there is no reason why the milk supply of even a small town should not conform to the requirements of certified milk.

It is not my intention to attempt any discussion of the various methods used in the feeding of normal and abnormal infants. It does seem, however, that, given a healthy infant of two or three months of age, doctors, as well as mothers, often go far out of the way to find a substitute for mother's milk when the gravity cream and skimmed milk mixture gives all the elements necessary for the infant's development and admits of all manner of variations in these elements to meet special indications.

If we exclude the preserved milks and those foods which are intended to be used in the modification of fresh cow's milk, the world would probably be none the worse if the proprietary infant foods were discontinued, and I would hazard a guess that anyone of the larger factories could, without increasing its capacity, produce a sufficient quantity of all the preparations used in milk modification to meet the legitimate needs in infant feeding.

If I should be asked to name the chief reasons for the failures in infant feeding in general practice, I would give them in the following order: (1) discouragement of the doctor on account of the ignorance of the mother, particularly that profound type of ignorance that is unaware of itself; (2) fear on the part of the doctor of percentages or simple arithmetic; (3) false pride on the part of the physician.

When a doctor is giving feeding formulae once every few weeks instead of daily, it is no disgrace not to be able to carry the figures always in his mind and the following day is plenty of time to begin the feeding which in his judgment best suits the needs of the infant. Most mothers seem to appreciate carefully written directions. In this connection I wish to state that I know of no work that has been as helpful to me as Dr. Hill's book, "Practical Infant Feeding."

With orange juice and occasionally cod liver oil, some modification of fresh cow's milk will suffice to carry the infant to the end of the first year at which time most infants can take whole cow's milk.

I do not believe we are ever justified in

taking the risk of not boiling the baby's milk during the hot months in our climate. The cleanest of milk, when hauled about for two hours on a delivery wagon during a hot summer morning, may be a very unclean food for the baby.

Feeding the baby during the second year is as much of a problem as the care of the infant during the first year, yet we are called on much less often to assume this responsibility and, when the task is left to our decision, we are probably much more negligent than we are in the care of the young infant.

How often is the doctor asked the question, "My baby is a year old now, what may I give him to eat?" as if some very radical change should immediately take place?

It is generally conceded that milk should be the chief source of food throughout this year. There is a tendency on the part of babies that have been taking the bottle a long time to refuse milk once they begin to take a variety of foods. For this reason, as well as for the risk that might be incurred, it seems wise to let the changes in diet come about very gradually.

The plan as outlined by Dr. Hill for the healthy infant is to begin about the eighth or or ninth month on the simple starches. From the ninth to the fourteenth month the diet consists of milk, cereals, zwieback, soup or beef juice and orange juice. Strained green vegetables are added after the fourteenth month, potato and eggs after the sixteenth month and meats at the end of the second year.

The rather radical plan of early variation of the diet particularly the early feeding of green vegetables should be left to the specialist who is supposed to see his patient oftener than we do.

The whole question of infant feeding is individualistic. It is an interesting branch of our profession and can be either most discouraging or most gratifying to the doctor.

I think no one dislikes more than I the ancient and often repeated cant that doctors follow their profession solely for the great good they do suffering humanity. Most of us become doctors in ignorance of what we are doing. Quite a number remain doctors because of ignorance of other professions or of the trades that yield a livelihood. Yet there are times in the professional lives of all of us when we experience the highest type of pleasure, a pleasure that is cheapened by praise, the plea-

sure that is given by the consciousness of a good deed well done.

Such a feeling one experiences when he has been the means of guiding back to health and happiness a tiny bit of wailing and fretting humanity. May I quote you a word picture that paints at the same time the despair, the hope, the pleasure, and the joy that often times comes to the doctor in this part of his work? In 1865 Dr. West, an English physician wrote:

"The infant whose mother refuses to perform toward it a mother's part, or who, by accident, disease, or death, is deprived of the food that nature destined for it, too often languishes and dies. Such children you may see with no fat to give plumpness to their limbs, no red particles in their blood to impart a healthy hue to their skin, their faces wearing in infancy the lineaments of age, their voice a constant wail, their whole aspect an embodiment of woe. But give to such children the food that nature destined for them, and if the remedy does not come too late to save them, the mournful cry will cease, the face will assume a look of content, by degrees the features of infancy will disclose themselves, the limbs will grow round, the skin pure, red and white, and when at length, we hear the merry laugh of baby-hood it seems almost as if the little sufferer of some weeks before must have been a changeling, and this the real child brought back from fairy-land."

THE MANAGEMENT OF THE ACUTE HEART.*

By F. C. RINKER, M. D., Norfolk Va.

When we consult vital statistics, hospital and clinic records, we find ample reason for a discussion of the various methods used in the care and treatment of acute heart conditions which are occurring with ever increasing morbidity and mortality.

Of the 3,764,000 men who stood medical examination for service in the World War, 550,000 were rejected on account of effects of heart affections.

Schmidt reports cardiac abnormalities resulting from acute infections in 1,373 cases of school children in Detroit out of 148,000 examined.

Estimated from the examinations of New York City's school children, Halsey reports that there are about 200,000 school children in

the United States who have evidence of "heart-disease."

From the examinations of life insurance records, it has been shown that more persons die from heart disease under twenty-five years of age than from typhoid fever; between the ages of twenty-five and thirty-four as many die from pneumonia, and after forty-five years of age more deaths are recorded from heart disease than from any other disease.

According to several reports, 10 per cent of the capacity of general hospitals is being occupied by cases of heart disease and 20 per cent of the ambulatory cases of medical clinics belong to the cardiovascular group.

A glance at these figures is in itself sufficient to spur us on to greater effort in the management as well as the prevention of heart-disease.

Someone has well said, "Given a thousand years to make a man and he would not be infection free." From infections, local and general, the heart probably suffers more than any other organ in the body.

This discussion is to be devoted to the acute heart only. For convenience let us divide those conditions which occur in the heart as acute disease into: 1. Acute endocarditis; 2. Acute myocardial derangement as a result of infections and contagious diseases.

First Group—Acute endocarditis is an acute inflammation of the endocardium resulting from infectious diseases, such as scarlet fever, acute rheumatic fever, acute tonsillitis, etc., resulting in destructive vegetations of the valves of the heart and marked constitutional symptoms.

The treatment of such a condition must be directed against two factors:

1. Local infection in the heart, and its effect on the circulation.
2. The remote infection of origin which has caused the cardiac disturbance.

The patient should be kept at absolute rest under the supervision of a nurse, when practicable, the diet should be light and nourishing, and, if there is edema, liquid food should be limited, the intestinal tract should be kept acting freely but not purged in the majority of cases, the skin (being one of the main avenues of elimination) should be kept clean, warm, and as active as possible. Water may be given freely unless there is edema or deficiency in urinary output (or it is well to regulate the intake of fluids with the daily output of urine). The mouth and throat should be

*Read at a meeting of the Norfolk County Medical Society, Norfolk, Va., November 17, 1924.

kept cleansed and when there is local infection in either, means should be directed toward its eradication. All foci of infection should be removed at a safe time.

Many drugs have been advocated as useful in the treatment of acute heart affections. I will attempt to deal with the more important and useful ones.

1. Digitalis: Whenever there are evidences of cardiac weakness or disease, and, in some instances, prior to this warning (as in pneumonia), digitalis should be begun either by mouth, by hypodermic, or by rectum. The heart should be digitalized and kept under the influence of digitalis until the danger period is past.

2. Following the recent work of Young and others, I advise the intravenous use of mercurochrome in the bacillary and streptococcic infections, and gentian violet in coccal infections, provided the type of infection is determined by positive blood culture. This method of treatment has not, however, proven very satisfactory in the malignant cases of endocarditis.

3. Salicylate of soda is advised in all cases during the infectious stage; it may be given by mouth, by vein or by rectum.

4. Iron and arsenic may be used in those cases having anemia.

5. Morphia. The patient should not be allowed to suffer pain on account of the effect of suffering on the circulation. Morphine is by far the most valuable drug to be used for the relief of this symptom. Præcordial pain may be also relieved by ice bag or mustard plaster locally.

The convalescence of these patients should be carried over a longer period of time than that of other diseases. When the patient is allowed to sit up and finally get up, his cardiac reaction to change in posture and to exertion should be watched very carefully. After being allowed up and about, it is wise to warn these patients regarding exertion and fatigue, advising them as to the necessity of reporting such symptoms as dyspnea, headache and digestive disturbances.

Second Group.—Acute myocardial changes may and frequently do occur in association with infectious diseases or any localized infections of severe degree. In cases of pneumonia, typhoid fever, scarlet fever, peritonitis, carbuncles, etc., the heart should be watched carefully and, in my opinion, digitalis should be started early in order to safeguard the myo-

cardium before the damage is done. This is particularly true in cases of pneumonia, where cardiac efficiency is all important.

To conclude, let us remember that acute heart diseases do not mean only the detecting of cardiac murmurs signifying endocardial lesions, but that the efficiency of and conservation of the heart muscle strength is most important in the treatment of all infections which may and do affect the cardiovascular system.

Sarah Leigh Clinic.

THE MANAGEMENT OF THE CHRONIC CARDIAC.*

By C. LYDON HARRELL, M. D., Norfolk, Va.

In speaking of the chronic cardiac we naturally think of two classes of cases: First, those who are living a natural life, performing their every day duties and are symptom free, so far as the heart is concerned. Second, those who have symptoms of heart failure, and seek treatment.

Under the first class, we have the chronic valvular diseases, early hypertensive cases, extra systoles or drop beats, low grade myocarditis in people of middle life, and sometimes a tobacco heart. The heart in these cases under normal conditions is compensating or doing its work without showing any reaction, but if put to a sudden strain, or if an unusual load be put on the myocardium, you get a reaction in the form of a rapid pulse, shortness of breath, occasionally pain over the heart and a heart murmur, or an increase in intensity if the murmur previously existed.

These patients are not sick; but are potentially sick. They need no treatment, but need to be taught how to live so as to keep themselves physically fit. First of all, if the patient be obese he should reduce to, or just below the normal weight for his height and age; he should try to maintain this weight forever afterward. This can be done only by diet and light physical exercise, preferably in the open. They should cut out tea and coffee, tobacco, alcoholic stimulants, condiments and highly seasoned foods. They should eat moderately, and never overload the stomach. The main meal should be taken in the middle of the day. All foci of infection should be removed, such as teeth and tonsils, and constantly be on the lookout for others. These people, who have the habit of forming pus, have a peculiar

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faculty of keeping it up. You cannot repair damage already done, but you can prevent further damage by promptly getting rid of your source of infection. The patients with potential heart disease should have plenty of sleep and recreation, avoid doing anything in a hurry or putting an unnecessary strain on the heart. These cases should take a vacation once or twice a year, either to the seashore or in the mountains, get themselves away from home cares and business worries.

The instructions given to these cases should be given in such a way as not to call undue attention to the heart. In many cases of a neurotic tendency, we do harm by saying that they have heart disease or high blood pressure. You will make invalids of some rather than cure them. It is best in such cases to tell the real facts to some member of the family.

Under the second class, we have the cases who present themselves for treatment with symptoms of heart failure, as shortness of breath, indigestion, palpitation, cough, a tired feeling, pain in the region of the heart or inability to exert themselves. These cases may be classified according to the degree of failure of the heart muscle. I will speak of them briefly under the following heads:

1. Chronic myocarditis or valvular disease with failing compensation.
2. Acute, or sudden cardiac failure.
3. Chronic myocarditis with marked edema or anasarca.
4. Chronic syphilitic aortitis.
5. Chronic cardiac hypertrophy, secondary to hypertension.
6. Angina pectoris.

The cases of *Chronic Myocarditis with Failing Compensation* usually present themselves with the following symptoms: Indigestion, shortness of breath, palpitation of the heart, and cough, usually made worse on exertion. We should try as nearly as possible to determine the pathology in these cases, a careful history as to what a patient can do without symptoms, a careful physical examination before and after exercise. There are different cales thenics that you can put the patient through which according to the reaction will help to determine the extent of injury in the myocardium. Sometimes a vital capacity will give valuable information as to the amount of endurance the patient has, more especially if we know his normal. In cases where there is any irregularity in the pulse rate or contraction of the

heart, an electrocardiographic study will help us a good deal in determining the form of irregularity, the extent of damage to the myocardia, and which side of the heart is really at fault. The diagnosis made, we should then outline our treatment. The patient should be put to bed, at absolute rest in as comfortable position as possible; this is usually propped up on pillows, or a bed rest at an angle of about forty-five degrees. We must be sure to give the patient plenty of rest the first few nights. I prefer a hypodermic of morphia, with ammonium bromide grs. 15, and morphia gr. 1/16 by mouth during the day. I believe that sleep and a quiet nervous system are very essential in treating any cardiac case. The fluids should be limited to 1,500 c.c. in twenty-four hours, checking the urine to see that the intake does not exceed the output. A salt free semi-fluid diet is advised. I give fifteen to twenty minims of digitalis three times a day. The patient should be kept in bed several days after the pulse is normal and he is symptom free, and then let up and made to begin exercise very gradually.

I wish to make a few remarks concerning the use of digitalis. I believe that it is a very much misused and abused drug. Whichever preparation you use, be sure to select one that is potent, and one that you are familiar with, and stick to it. No two preparations of digitalis have the same strength; all of them lose their strength when exposed to the air, whether it be the leaves or the liquid. Dr. Christian once told me he preferred the freshly powdered leaves to any other. He always ordered his digitalis from the same supply house and tested each shipment before it was dispensed from the drug store. The writer uses either the tincture or powdered leaves, but prefers the tincture for general work, for it is much easier to regulate the dose. I am opposed to prescribing it promiscuously; use it when it is indicated and leave it alone when it is not.

There is a tendency now on the part of many internists to give very large doses of digitalis either at one dose or within the first twenty-four hours, their object being to get the patient thoroughly digitalized, and then discontinue the drug. Eggleston's method is to give one c.c. of the purified tincture or .01 gram of the dry leaf to every ten pounds of body weight, so a patient weighing 150 pounds would get 15 c.c. or 1/2 ounce of the tincture, or 15 grains of the dried leaf.

Pardee has shown that the body disposes

daily on an average of twenty-two minims of the purified tincture of standard potency. In his experiments the lowest was ten minims and the highest forty; therefore, it is necessary when the administration of the drug is continued over several days and you wish to thoroughly digitalize the patient to add this amount to the approximated dose. We also learn from this that digitalis has an accumulative effect, an argument against continuing it indefinitely.

Digitalis may be administered by mouth, per rectum, or hypodermatically. There is practically no advantage in giving it hypodermatically except in cases of digestive disturbance. It takes approximately two hours to show its effect on the heart muscle when administered either way. It is absorbed from both the stomach and rectum, and shows its effects in about the same length of time.

Personally, I see no advantage in the large heroic doses; there are many disadvantages. We cannot be with our patients all the time, and it acts as a poison in some instances. Luten has shown that when successive fractions of the lethal dose of the tincture of digitalis are injected intravenously into cats, auriculo-ventricular dissociation takes place after about 80 per cent of the lethal dose has been administered. This is brought about by ventricular acceleration. He has also proven this clinically in numerous cases, one of which I will mention. The patient showed a normal mechanism before the administration of digitalis; ventricular tachycardia developed in twenty-two and one-half hours after the last dose. The patient received 16 c.c. or $\frac{1}{2}$ ounce of the tincture in sixteen hours. Before digitalis the rate was 96; after digitalis the rate of the auricles was 170 and ventricles 145,—thus proving that a large dose of the drug may cause a dissociation of auricles and ventricles and produce a tachycardia. Often a toxic dose by reflex symptoms will produce nausea and prevent the taking of food.

Acute Heart Failure, With or Without Auricular Fibrillation.—These cases are usually extremely sick and demand prompt treatment, or the worst may be expected. They should be immediately placed in a comfortable recumbent position. Remove all tight clothing without any exertion on the part of the patient. They should be given plenty of fresh air; it is best for the breeze to blow directly on the face; avoid crowding in the room or anything

that would tend to excite the patient. Give a dram of aromatic spirits of ammonia by mouth, a hypodermic of $\frac{1}{4}$ gr. of morphine combined with strychnine or atropine. If there is pain over the heart, apply an icebag, and hot water bottles over the body. If the patient appears to be very much cyanosed or the veins in the neck engorged, venesection is indicated, removing 8 to 10 ounces of blood to help relieve the right heart. After the emergency measures have been done, we should then start giving digitalis, one c.c. hypodermatically every four hours. Some recommend giving caffeine or camphor. The writer has but little faith in their value, neither has MacKenzie nor other writers with whom I consulted. These cases should be kept extremely quiet for several hours with no exertion; sleep is what they must have. The food should be restricted to warm stimulating drinks. After the acute stage is over, they should be handled as any other case of myocarditis with failing compensation.

Among the cases of chronic myocarditis, we usually get the various forms of irregularity of the heart, the most common of which is auricular fibrillation. Most of these irregularities usually disappear with rest in bed and digitalis, but some few do not. In such cases, we resort to the use of quinidine sulphate, grs. 5 three times a day being usually sufficient. The patient must be kept in bed while on the drug, and it should not be administered until three or four days after digitalis has been discontinued.

In October, 1921, a white man, age sixty-three, was referred to me for treatment, with all the symptoms of a failing compensation, including edema of the ankles, passive congestion of the liver and a very irregular pulse. He was put to bed and given digitalis. In three weeks he was symptom-free and able to return to his home in the country under the care of his physician. In May, 1923, he reported again, but was in much worse shape than on his previous visit. In about three weeks his symptoms cleared up but his arrhythmia did not, and, on exercise, his symptoms reappeared, cough, dyspnea, etc. He was put back to bed and digitalis discontinued. On May 17th, he was given quinidine sulphate, grs. 5 night and morning. On the 19th, he was feeling much better, with a pulse rate of 80, and missing only one or two beats per minute. On the 21st, his pulse rate was 76 and regular, but he was coughing up some

bloody mucus. His systolic blood pressure was 98; diastolic could not be read, consequently, he had no discoverable pulse pressure. The quinidine was reduced to 5 grs. per day and continued for some time. You will see from this that the quinidine lowered the pulse rate and improved the rhythm, but had no beneficial effect on the heart muscle. However, in a few days he was feeling much better and prevailed on me to let him go home, which I did, against my judgment. He went home on a cot and I wrote his physician what had been done. What the patient did I do not know except that he died in about two weeks. This shows the importance of keeping them quiet and under observation while taking quinidine.

Chronic Myocarditis With Marked Edema or Anasarca.—These cases as a rule are very uncomfortable, besides being very ill. The pulse is usually very rapid and often irregular. They are unable to lie down on account of dyspnea; consequently, they are first up and then down, first in bed then out of bed. All the serous cavities are filled with fluid, tissues waterlogged, kidneys almost inactive, mucous membrane of the digestive tract is usually edematous, and, as a result they are unable to care for food,—the effect of failing myocardium. They should be put to bed for an indefinite time, and insist on their staying in bed, propped up on a bed rest until they are able to lie down. The best results can be obtained in a hospital. They should be given a hypodermic of morphia $\frac{1}{4}$ gr. at bedtime for several nights to insure rest. I also use morphia and bromides during the day to quiet the nervous system. Morphia will sometimes check the dyspnea and give them rest when nothing else will. They should be put on a strict Karell diet for four or five days; this is twenty-eight ounces of milk, given at four feedings,—nothing else by mouth. This alone will sometimes start the kidneys to secreting, often as much as six to eight quarts in twenty-four hours. After the patient is quiet and accustomed to being in bed, I start digitalis, usually from twenty-four to forty-eight hours after they are put to bed, twenty to thirty minims every four hours. An old remedy, and one that is frequently used with good results, is digitalis, squill, calomel, one grain of each, given three times a day. The bowels should move at least once a day, preferably with a saline or a mild purgative. Severe purging is contra-indicated as you already have an engorged and edematous

mucous membrane of the entire intestinal tract. If the kidneys should not start acting freely in two or three days, it is advisable to increase your dose of digitalis and give other diuretics, as diuretin or theobromin. Some clinics are using calcium chloride intravenously to reduce edema. As yet, this is in the experimental stage, though some clinics are reporting good results.

As the edema disappears and the heart muscle gains some of its tone, the diet may be gradually increased up to a semi-solid diet, *adhering strictly* to a *salt free* diet and limiting your fluids to 1,000 c.c. in twenty-four hours. After this stage, they should be handled as any other case of myocarditis with failing compensation, but their stay in bed should be a great deal longer. They should not be allowed up for several weeks after they are symptom-free. By symptom-free I mean a normal pulse in rate and rhythm, and ability to sleep flat without discomfort. When you begin to let them up, it should be done very gradually; in fact, it is just as important to watch your exercise each day as it is to insist on absolute rest in the beginning. The object is to increase the endurance or efficiency of your heart muscle by gradually increasing the load.

January, 1921, I was called to see a white girl, age fourteen, and found her propped up in bed panting for breath. She was swollen almost beyond recognition. Her lower limbs, abdomen, and even her face, were edematous. Her respiration was very rapid and also her pulse. She had a to-and-fro heart murmur, heard all over the front of her chest. The heart was very much enlarged. I knew from the surroundings that I could not handle this case at home, so I refused to prescribe for her until she was placed in a hospital with the understanding that she stay there until I gave her permission to leave. She entered the hospital January 20th, and remained until May 29, 1921, a little over four months. She was put to bed and propped up at an angle of forty-five degrees, and given morphia $\frac{1}{4}$ gr. hypodermatically for several nights; she was also given tincture of digitalis, minims fifteen, every four hours, and a strict Karell diet for four or five days. At this time the kidneys were acting very freely and edema began to disappear. More food was gradually added, adhering to a strict salt free diet, and checking the fluid intake and output. The patient was kept in bed during her entire stay in the hos-

pital except being up in a rolling chair two days before returning home. She was watched very carefully as to exercise and diet, for, on discharge, she ran a pulse around 90 to 100, and was symptom-free while performing the ordinary duties around the house. When she stepped beyond this, her pulse rate would go up and she would have dyspnea. At this time she had a very large heart with a loud diastolic and systolic murmur which could be heard both at the apex and base.

The patient reported at my office October 28, 1924, for an examination, nearly three years since I first saw her. She walked several blocks to the office, her pulse rate was 84, and she was symptom-free. She stated that she had been doing office work for nearly a year and danced occasionally without trouble. At this time only a systolic murmur was heard, best at the apex, and conducted toward the axilla. I report this case in detail to show what may be obtained by prolonged rest in bed, co-operation on the part of the patient, parents and doctors, and a graduated exercise when the patient is let up.

Chronic Syphilitic Aortitis.—This should be handled as any other case of myocarditis with failing compensation except the syphilis should be treated at the same time. The recognized method of treatment at present is to give a four weeks course of mercury first, preferably by inunctions. If at this time the heart muscle has gained sufficient tone, one of the arsenical preparations may be started, preferably neosalvarsan, beginning with a .02 gram dose and increase each week until the maximum of .09 gram is reached. Give six doses provided the patient stands it well, then another month's treatment of mercury. After this, repeat the entire series until your blood Wassermann is negative. My experience with these cases has been very limited, except for short periods of time. The results as a rule are not very satisfactory; however, I have in mind a few cases that have done well under this treatment, but the bulk of them do not stay well long.

Chronic Cardiac Hypertrophy Secondary to Hypertension.—This really does not belong in the category of cardiac disease, but the heart or the symptoms of cardiac failure is what the physician is usually called upon to treat. Myocarditis with failing compensation is one of the end results. The prime object in this condition is to locate where possible the cause or causes of the hypertension and remove them.

Remove all foci of infection. The same instructions should be given here as to the case of myocarditis with compensation. The patient should get as much outside recreation as he is able and capable of taking, such as walking, golfing, fishing, etc., but there should be no violent exercise. We should insist on their living a quiet and peaceful life, on a light salt-free diet. Anything that helps relieve the hypertension will relieve the load on the myocardium. For the acute attacks with dyspnea and vertigo, rest in bed, purging, and venesection are advised. I have taken sixteen to eighteen ounces of blood from these cases and have relieved their symptoms for several weeks, sometimes months. I strongly recommend it in extreme cases where the heart has more than it can do. The nitrites and the iodides are sometimes of benefit, but their action is very fleeting. The cases of failing compensation should be handled as any other—resort to digitalis. It has no effect on elevated blood pressure.

In cases of *Severe Precordial Pain or Angina Pectoris*, an ampule of amyl nitrite broken and inhaled slowly often relieves the attack; likewise a nitroglycerin tablet 1/100 gr. put on the tongue may relieve, together with an icebag over the heart. Morphia also often gives good results.

The cases that are subject to chest or sub-sternal pain should be exceedingly cautious about their exercise. They should be cautioned never to do anything in a hurry, as climbing a flight of stairs, or running to catch a car, more especially after a meal. They should always carry nitroglycerin tablets in their pocket, and when they feel an attack coming on, take a tablet and sit down until the attack wears off. I once read of a case that would be thrown into severe attacks of chest pain by walking from the dining room to the adjoining room immediately after a meal. The patient was instructed to have a comfortable chair placed by the table and sit there for thirty minutes after each meal; this she did, and the attacks subsided.

In handling any case of heart disease, it is absolutely necessary that you have thorough co-operation between family, patient and doctor. Without co-operation one can do nothing. With it, many of these so-called old chronics may be carried on for years in fair comfort and usefulness.

I would summarize my treatment in four words: diet, digitalis, rest and co-operation—but the greatest of these is co-operation.

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PATHOLOGY AND SYMPTOMATOLOGY OF INFLUENZA.*

By W. E. JENNINGS, M. D., Danville, Va.

No patients die of the simple forms of influenza. Death is due in a large proportion of the fatal cases to pulmonary lesions.

The pathological picture presented at autopsy may be composed of so many complex and varied pictures that it is a difficult matter to give a clear account of the lesions.

True lobar pneumonia has been reported in influenza but this is a rare finding. However, a whole lobe may be consolidated owing to the confluence of patches of bronchopneumonia. As Wolbach has pointed out, two pictures of the lungs may be distinguished in those who have died within a very short time after signs of pneumonia have appeared clinically, and in those who have lived ten days or more. In the former class may be placed those cases of sudden death from overwhelming fulminating infections that are occasionally seen. In the early cases the lungs as a whole are extremely red and congested, while beneath the parietal layer of the pleura numerous hemorrhages are seen, pin-point in size, or the whole surface may appear mottled with hemorrhages about the size of one's little finger nail. The organs are partially collapsed, lax, and of a rubbery feel, not so solid and firm as in the case of gray hepatization of lobar pneumonia. Tyler has called this the "diffuse, congested and edematous type."

Some times a dark red fibrinous exudate may be noted on the pleura. On section the cut surface is a dark red although in areas a more vivid color and angry appearance may be seen. The bronchi are very congested and contain very little if any muco-purulent material but a rather frothy reddish material. Microscopically in the case of patients who die quickly in a condition of acute alveolar emphysema a deposit of hyaline fibrinous material is found

on the alveolar walls. The intervening alveoli are compressed and filled with exudate which in the early cases is largely serous or bloody and contains but little fibrin. This hyaline fibrinous material arises from the smallest bronchioles and alveolar ducts and is forced into the alveoli by air. In one part early lesions may be found, while in adjoining regions may be noted lesions much further advanced.

Taking the whole course into consideration, Wolbach is of the opinion that the reaction to Pfeiffer's bacillus is less intense in the later than in the earlier stages. It must be borne in mind that secondary invaders may step in at any stage and their characteristic lesions mask that produced by Pfeiffer's bacillus. But sometimes the lesions remain separate in the same lung, or even in the same lobe. Occasionally peribronchial abscesses are seen, usually small and scattered in area, although they may be found in clusters. Occasionally large abscesses are found and are probably caused by infarcts. There are practically always found small punctuate hemorrhages beneath the pleura.

The heart is usually affected to a greater or less extent. A slight excess of clear pericardial fluid is generally found. Subpericardial punctate hemorrhages are very common. The heart itself in the majority of cases shows dilatation of the chambers on the right side. Except for cloudy changes in the myocardium, nothing abnormal is found. The heart muscle is very definitely softer than normal in a small per cent of cases.

The kidneys are, as a rule, greatly congested, the stellate veins are injected, and fine hemorrhages are often seen in the pelvis. In other cases the cortex is slightly broader than normal and cloudy swelling is present.

Symptoms.—The onset is usually sudden, although there are certain numbers of cases of which the onset is much more gradual and lasts from a day to a day and a half. The symptoms at the onset are not unlike those complained of at the beginning of other acute febrile conditions. Definite chills are uncommon but there is generally a feeling of chilliness. The temperature rises rapidly to 103 and occasionally to 105, the face becomes flushed, the conjunctivae are injected and the patient takes to bed with widespread aches and pains which are especially marked in the lower part of the back and muscles of the leg. There is a general feeling of prostration and malaise. The patient is drowsy and looks limp and

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heavy, and dull about the eyes. Usually there is very little coryza, but the patient may cough a little and complain of hoarseness and sore throat or a pain behind the sternum. Sometimes the frequency of the cough is in striking contrast with the negative chest findings. Less often the disease may commence with nausea and vomiting, pain in the abdomen and diarrhea. The affection may begin with a sharp epistaxis. The tongue is dry and covered with a brown fur. The lips are slightly cyanosed even in the simple forms of influenza. Examination of the chest usually reveals little abnormality, but sometimes scattered, coarse rales may be made out.

In comparison with the high temperature, the pulse rate is but slightly raised and the respiration is rarely over twenty. These simple cases usually last from three to five days, when the temperature comes down by sharp lysis although crisis is sometimes observed. Drenching sweats are common even where antipyretics are not used. The patient usually feels played out for several days, and emaciation is quite considerable even after a mild case. Some patients may be ill for a week or more with acute laryngitis and aphonia, and never show a temperature above 99 or 100.

As far as can be ascertained no patients die of simple influenza.

Between the simple and the pneumonic forms there is a group of cases in which there is more sputum and more definite signs of bronchitis than in simple influenza, but the condition of the patient is not serious and no consolidation of the lung can be made out. In the present state of our knowledge of the disease, it is difficult to state what are, and what are not sporadic cases of influenza even if the bacillus influenza is the predominant micro-organism in the sputum.

There is the more severe type or the pneumonic form, in which the onset is sudden and from the first the symptoms are graver than in simple influenza. There may be severe epistaxis, headache, body pains as in the simple form, but together with these symptoms there is great respiratory distress, a hacking cough, cyanosis, and marked dyspnea.

The condition is alarming and much more so than the examination of the chest would seem to justify.

On percussion there is diminished resonance, but no actual dullness. In auscultation a rather patchy diminution of the respiratory

murmur is made out. A few moist rales may be heard. The cyanosis increases and the patient may die in from thirty-six to forty-eight hours.

The condition of the heart may remain remarkably good until just before the end, when its action becomes very rapid, the pulse thin and thready, and the patient expectorates a quantity of frothy blood stained fluid. The temperature may drop to normal before death. The temperature curve is a very irregular one.

Recovery by crisis is not uncommon, although the temperature usually comes down by lysis. A rapid fall to subnormal, when not accompanied by a lowering of the pulse and respiration, is a grave sign. Cyanosis is a prominent feature in the clinical picture of these cases. It may be of a dark reddish blue variety, seen in lobar pneumonia, but in the majority of instances it is of the lilac or heliotrope variety described by French. It may be seen over the entire face, or it may be confined to the ears and mucous membrane of the lips. The cyanosis is not due to embarrassment of the right side of the heart, but to some lesion of the respiratory epithelium which prevents the oxygen in the alveolar air from entering into the blood. It has been found that the fault does not lie in combining power of hemoglobin and oxygen. In fact, a satisfactory explanation has not been found.

The white blood cell count is rarely increased, and very often is below normal.

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MEDICAL TREATMENT OF INFLUENZA.*

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Prophylaxis.—Preventive measures directed against the contraction of influenza, especially in epidemic periods, are either desirable general hygiene or measures based upon empiricism, since we are doubtful as to the causal organism and are ignorant of the causes which led to the occasional world-wide spread. Considerable difficulties are found in trying to carry out preventive measures against influenza, owing to the short incubation period and the non-recognition of the disease in its early stages before the patient has conveyed the infection to a large number of persons.

Personal Protection.—Rooms should be airy and well ventilated. The individual should

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guard against draughts and chilling of the body surface. He should gargle the throat and spray the nose with a mild antiseptic, night and morning, and in epidemics keep away from public gatherings and crowded conveyances. Vaccine therapy, if used, must be carried out in combination with protective agencies. As a prevention, vaccines are in an experimental stage, yet a combined vaccine of influenza bacillus, streptococci and pneumococci seemed to do some good in British Naval and Air Forces, although the immunity produced was of a short duration.

General Measures in Treatment of Acute Influenza.—The patient should be put to bed in a well ventilated, warm room, with no draughts blowing on him, and kept in bed until fever has been absent forty-eight hours. Calomel is given followed by salines or castor oil to combat toxemia. Large quantities of water, soda water, lemonade, or barley water are given to flush kidneys. Liquid diet is advised, although egg-nogs, custard and junket can be given. For pain and fever, the ice cap to the head, together with phenacetin and codeine internally generally give relief, although it is necessary at times to give a hypodermic of morphine, grain $1/6$ to $1/4$, and atropine grain $1/150$. Warm sponge baths and alcohol rubs afterwards are soothing and will often induce sleep. For sleeplessness, Dover's powder, trional or luminal may be given. For simple irritation of the throat, antiseptic gargles are used, but if the tonsils show any sign of acute infections they may be mopped with 6 to 8 per cent nitrate of silver solution daily. In case of hoarseness or laryngitis, the patient may inhale compound tincture of benzoin, one drachm on boiling water, and have ice bag or mustard plaster applied over throat. No treatment is needed for slight epistaxis, but, if severe, the nostrils may have to be packed with gauze saturated in adrenalin, and hemostatic serum given hypodermically. For cough, ammonium carbonate and carbonate of creosote in syrup of wild cherry may be used as an expectorant, with codeine, if the cough is bothersome.

In case of collapse, whiskey, aromatic spirits of ammonia and strychnine may be given. Other treatments, such as treating severe cases with the whole blood from a convalescent patient, may at times be necessary. In such instances, the convalescent from whom the blood

was taken was one who had been free from fever for four or five days. When possible, a convalescent with symptoms and complications of the same type as those of the patient treated would be used. In most cases the blood was injected within a few minutes of its withdrawal, but when this could not be done 2 c.c. of a 2 per cent sodium citrate solution was used to prevent coagulation. The amount of blood used was 10 to 20 c.c. injected subcutaneously into abdomen or thigh. In most every case the injection had a favorable effect upon temperature and the general condition of patients was improved.

Bayeux states that influenza involves a reduction of pulmonary ventilation and diminished oxygenation of the system which is increased by the fever. Broncho-pneumonia frequently complicates influenza; the respiratory embarrassment becomes more serious and may cause a fatal asphyxia. Artificial oxygenation is indicated in such cases, but in practice oxygen inhalation involves the use of complicated apparatus. Consequently the author advocates the use of the subcutaneous injection of oxygen which he has used for many years in all types of influenza. Those injections should be given at an early stage and continued as long as fever or symptoms of insufficient respiration persist. The dosage is based upon the rapidity of the absorption of the oxygen. The greater the respiratory embarrassment, the greater the absorption. Dyspnea is relieved, the lungs are less affected and less liable to further infection, fever is reduced and renal excretion is improved. Bayeux has never observed any outward effects of this treatment, but has found that it shortens the course of the disease and improves the prognosis.

Willmore and Gardner Merwin, of England, report a treatment used in influenza, based on the following considerations:

1. The causative organism in influenza is not definitely determined, hence specific therapy is not indicated.

2. A marked leucopenia is invariably found in early uncomplicated cases, corresponding in degree with a clinical severity of the disease and a consequent lowering of a patient's resistance.

3. A profound toxemia is noted in the severe cases, with vomiting, abdominal pain and deep cyanosis out of proportion to the

pulmonary involvement found at autopsy—very similar in type to acid toxemia.

Treatment was, therefore, two-fold: First, hypodermic or intramuscular injection of sodium nucleinate to stimulate the production of leucocytes directly. The sodium nucleinate was obtained in ampules of 2 c.c. containing .05 gm. per c.c. The usual dose was one ampule given intramuscularly although a second dose was sometimes given at request of patient. Second, large doses of an alkali in the form of sodium bicarbonate, one drachm every four hours, were given and as much glucose in food as patient would take. In severe cases glucose was given by rectum, subcutaneously, or intravenously in a 3 per cent solution with sodium bicarbonate in 2 per cent solution. In addition free purgation and cardiac stimulants hypodermically were employed, and where there was much mucopurulent expectoration a mixture of potassium iodide and creosote was given. In nearly all cases, rapid improvement followed the injection of sodium nucleinate, the crisis occurring usually in forty-eight hours after first injection.

This treatment was used in a large number of cases and gave excellent results. Vaccine therapy in acute cases is seldom necessary; in sub-acute or chronic cases with lung involvement, the combined influenza, streptococci and pneumococci vaccine seems to give the best results.

By heroic doses of salicin, Turner states that he is able to shorten an attack of simple influenza. He says this method seems to destroy the infectivity so that the disease does not spread throughout the household. He used 20 grains every hour for twelve doses then 20 grains every two hours for the next twelve hours. Bleur gives by mouth pills coated with gelatine containing 20 centigrams of methylene blue four times a day, but prefers intravenous injections of 1 to 2 c.c. of a 5 per cent sterilized solution. He states that there is no danger and the attack is shortened and complications prevented. Solutions of gold, tannic acid, silver and arsenic have been used and much is claimed for such treatments. Capitan employed intramuscular or intravenous injections of colloid arsenic, using 6 to 9 c.c. of colloid arsenic alone, or combined with equal amount of colloid silver, and gives three or four injections. Thirloix used intragluteal injections of milk and found it more powerful than other

colloids. He used 5 to 10 c.c. of cold milk which had been sterilized and filtered, although a local abscess may form and violent reaction follow. He continues with this morning and evening, at the same time giving rectal injections of 20 grains of eucalyptus leaves in one quart of water. Ferrarini commences intravenous injections of 1 centigram of perchlorid of mercury in 1 c.c. of normal saline if signs of pulmonary congestion appear and continues this treatment every four or five days, causing fall in temperature, improvement in pulse and decrease in cyanosis, this method being aimed at the pneumococci and streptococci which are such frequent invaders of the lungs.

Anti-pneumococcic and anti-streptococcic serums have been used and from some quarters quite favorable results reported.

The Pneumonic Form.—If possible the services of a nurse should be secured at once. The patient should be isolated especially from any others with influenza or any one with the streptococcus hemolyticus in their throats. The indications are to combat toxemia, provide rest, and to foresee and treat symptoms as they arise. The window should be wide open, and a plentiful supply of water and magnesium sulphate given every morning unless diarrhea be present. The patient should be fed as in simple influenza. For pleuritic pain a mustard plaster or the ice bag will help to relieve, but often it is necessary to give a hypodermic of morphine grain $1/4$ or $1/6$ and atropine grain $1/150$. If cough is dry and hacking, give codeine grain $1/8$ with glycerine 15 minims and spirits of chloroform 2 minims, in water every three hours.

Sleep is essential and Dover's powder or hypnotics are often necessary. Tympanites is often a serious matter with which to deal and turpentine stupes should be used. A rectal tube inserted while the stupes are applied allows the flatus to escape more readily. Liquids must be reduced and carbohydrates, such as sugar, decreased to the minimum. Turpentine may be given by mouth in 15 drop doses. If turpentine enemata are given, it is a good plan to give at the same time an ampule of pituitrin hypodermically every four hours.

If there is a nephritis, the bowels must be kept acting. A mustard plaster may be used over the lumbar regions and a hot colonic irrigation given to induce the kidneys to act. Atropine grain $1/75$, night and morning, is a

good respiratory stimulant. Oxygen may improve color in cyanosis.

It is a wise plan to digitalize the heart from the first and keep it so in order to be ready when the strain comes upon that organ. An ice-bag over the precordium will often relieve cardiac distress. In failing circulation a "hypo" of camphor in oil and caffeine and sodium benzoate will help. Venesection seldom produces any marked betterment, but Ravant highly recommends it in pulmonary edema.

In protracted or intermittent fever there is one treatment that is called for and cannot be emphasized too often; that is puncture of chest repeatedly in search of pus. In meningitis, daily withdrawal of cerebrospinal fluid under measured pressure is indicated, and, if the organism is cultivated, a vaccine may be made and injected. Influenza in pregnancy requires that every effort be used to keep the patient from having premature labor or abortion.

SOME NORMAL AND ABNORMAL PHENOMENA OF THE THYROID GLAND.

By JETER R. ALLEN, M. D., Marshall, Va.

The human thyroid is made up of two main masses. The lateral lobes are joined together in the middle by the isthmus, these combined portions weighing from 30 to 35 grams. It is enclosed by a capsule which maintains its position, and is only of interest surgically. From the capsule, septa extend into the gland, forming the glandular lobules. Accessory lobes are often found. The thyroid is superficially situated and covered by the skin, fascia, infrahyoid and platysma muscles, and in the normal individual is easily palpated.

Blood Supply.—It is very vascular in blood supply, receiving its supply from the superior and inferior thyroids on either side and their anastomoses which form a capillary network around the acini.

Nerve Supply.—The nerve supply has not been definitely determined, but the sympathetic branches constitute the chief supply, which may be supplemented by the superior, inferior and recurrent laryngeal nerves.

Physiology.—The thyroid gland liberates an internal secretion which exerts profound effects upon the growth and metabolism of the individual and also bears important relations to immunity. It is closely connected with sexual

development and function, this influence being more pronounced in the female than in the male.

The thyroid effects are probably reflected in all active cells of the body, and are in general catabolic, accelerating metabolism and increasing cell activity. Most of this effect is due to the active iodine compound secreted (thyroxin). So it would appear that the abnormal phenomena which occur would be attributed to disturbances of this secretion.

There is some direct or indirect connection of the thyroid with other endocrine glands and their secretions, but rather than get myself connected with the many different theories and opinions, I will confine myself to the thyroid.

We know that the thyroid plays an important part with the individual's growth and development, both mentally and bodily, especially in the female in regulating the process of menstruation, and during pregnancy hypertrophies to compensate for the added functional requirements. Therefore, we have physiological hypertrophy at puberty, the menstrual period and during pregnancy, but, while this is the rule, this physiological pendulum may swing too far and assume pathological conditions.

Thyroxin effects the blood pressure, pulse rate, and metabolism: First, nitrogen metabolism, next, fats, and finally, carbohydrates—which may be due to either direct stimulation or indirect effect.

There are two main divisions of disturbance brought about by perversion of thyroid function: Hypothyroidism from lack of secretions, and hyperthyroidism from an excess of secretions. Hypothyroidism is the less frequent that we are called upon to treat and the treatment is more easily decided upon. The symptoms occur as a rule in early life—during the development of the child and up to puberty. They are manifested by reduced metabolism, lowered temperature, short stature, increased carbohydrate tolerance, irregular development of epiphyses of the long bones, short stubby fingers and poor nail development, slow pulse, dry rough skin, scant dry hair, and slow development of the hair peculiar to sex, mental dullness, thick tongue, dull expression and lack of mentality. Teeth are irregular and dentition delayed, and at puberty sexual organs are undeveloped and the menstrual flow is slow in being established and irregular as to time

and quantity. The treatment of this condition, in addition to hygienic and nutritional means, is thyroid medication.

Hyperthyroidism is a disease which requires some explanation because it is often confused with another condition known and described as exophthalmic goiter. The former disease, as its name implies, is caused by an excess of thyroid secretion; therefore, you would expect to find the symptoms produced to be just the opposite of hypothyroidism or myxedema. According to Plummer's classification, there are two distinct types of hyperthyroidism, each due to different pathological changes in the gland. In simple hyperthyroidism there is not the typical hyperplasia of the glandular substance, but it may be associated with adenoma in the gland and the clinical syndrome is distinguishable.

The syndrome associated with adenomata of the gland is characterized by increased basal metabolism, caused by an excess of normal hormone liberated in the tissues, and begins about middle age. It is evidenced by nervousness, tremor, tachycardia, loss of strength and weight, and a tendency to hypertension. Later we may find a stage of myocardial degeneration.

The underlying cause of stimulus that activates the gland to adenomatous growth and over-secretion is not definitely known. The causes are usually some focal infection or mental strain, often called change of life by the laity.

Naturally the treatment would be to correct and treat the underlying cause if it can be found, and would be along medical and psychological lines.

Exophthalmic goiter, often miscalled hyperthyroidism, is also known as Graves' disease, Basedow's disease, Flajani's disease, and Parry's disease. It is brought about by increased activity of the thyroid gland, is accompanied by enlargement and increased vascularity of the gland, and, in addition to the symptoms mentioned under the head of hyperthyroidism, has the characteristic eye symptoms.

Etiology.—Heredity appears to bear a part in a fair number of cases. This condition occurs about ten times as often in the female as in the male, and is usually seen in young adult life from sixteen to forty years of age. Emotional causes, such as fright and long-

continued anxiety, are often exciting causes, and frequently there is a neuropathic family history.

By far the most frequent cause is psychic insult.

Symptoms and Diagnosis.—The symptoms are enlarged gland, palpitation of the heart and tremor, nervous apprehensions, loss of weight, insomnia, dyspnea, vomiting at times, headaches, precordial pains, rapid pulse, often dilatation of the heart, increased basal metabolism, and increased oxidation of the body. Later there may appear the characteristic eye signs, which are exophthalmus. In addition we may note Stellwag's sign, a widening of the palpebral fissure; von Graefe's sign, a failure of the upper lid to follow the eyeball in looking downward, and Moebius' sign, a weakness in convergence of the eyes.

Treatment.—Surgery gives the brightest field of success. Medical treatment is less certain.

X-ray has some advocates, and organotherapy may help in some, but the best treatment, leaving out surgery, that I have found is elimination—removal of all causative factors so far as they can be ascertained—and sedatives. Nothing, however, gives bright results, as a rule, in the hands of the general practitioner.

Goiter, also called bronchocele and struma, is a chronic enlargement of the thyroid gland. It is not due to neoplasm, and occurs more frequently in certain localities, especially mountainous sections. Like the rest of these diseases it is found more often in the female than in the male, and may be found at any age from childhood to old age, though the percentage of cases rises rapidly at puberty in both male and female. It is the expression of an effort on part of the thyroid to maintain a normal quantity of thyroid hormone to meet the needed deficiency, or may result from nervous, toxic or chemical effect.

The first change in the gland is hyperplasia of the epithelia to meet the physiological demands for iodine to compensate for the imperfectly formed secretions. General increased demand of the body for more thyroid hormone, such as occurs at puberty and in pregnancy, will cause a physiological hypertrophy which, if it persists after the need has passed, results in goiter, called simple goiter.

There are two kinds of goiter, depending

upon pathological changes in the gland, viz.: simple and colloid.

Simple goiter is caused, as I have stated, from excessive hyperplasia in physiological process. Other causes are focal infection, intestinal intoxications, but more often it is due to lack of iodine received from outside sources by the individual. Simple goiters rarely cause symptoms and never attain a large size.

Colloid goiter is a non-toxic type of goiter which may not give symptoms for years, except those that produce pressure upon surrounding structures. They may become very large and hang in great masses, which may be median or lateral depending upon the lobe or lobes involved. The gland alveolar are distended with colloid material, but the epithelia are not notably altered. These changes may not effect all the acini, but may here and there throughout the gland.

The complications of interest are occurrence of degenerative or proliferating changes in a pre-existing colloid goiter. These changes usually occur late in life and the patient will exhibit nervous and all other symptoms of toxic goiter except the exophthalmus.

The treatment mainly is preventive. It is a decided question that goiters are caused or brought on by a deficiency in iodine in the individual. Recently the different state health boards, including ours, have been recommending the use of some iodine product with the foodstuff, especially in localities where goiter is prevalent during the growth of the individual and at periods of life when there is an especial call of the system for iodine. Sodium iodide is the salt of choice. Among others, there is a salt put up by Mulkey's Salt Co., Detroit, Mich., and this is sold in most retail stores. It is nothing more than simple table salt to which just enough sodium iodide has been added to meet the iodine needs. We all know that goiter is more prevalent in mountainous sections than near the sea coast, due, no doubt, to iodine in the drinking water received from the sea weed which grows about the coast. While our waters in this section are comparatively free from iodine, I have noted this especially since leaving the lower section and taking up my profession in this part of the state.

Personally, I do not believe that all individuals will need iodine treatment to make up for this deficiency, but the main point which

I wish to emphasize is to be always on the lookout for those who are beginning to show symptoms, especially in growing girls, and by so doing we will prevent many cases of goiter. When we do feel that iodine treatment is indicated, we should observe the patient from time to time, and should toxic symptoms develop we should go slow or discontinue treatment for a while.

Other causes, such as focal infections—of the tonsils, for instance,—should have appropriate treatment; also, maintain the gastrointestinal tract in a healthy condition. Good hygiene and suitable diet are important. Surgery is often resorted to for purely cosmetic effects, and should not be delayed too long if medical treatment is not satisfactory, or if there is evidence of degenerative or toxic changes. Glandular therapy at this time is creating some interest in all classes of thyroid dysfunctions, but time and preparation will not permit me to discuss them on this occasion.

SUMMARY

The thyroid is essential to health and growth.

It may assume pathological manifestations.

Pathological phenomena occur oftener in the female than the male.

Early treatment gives brightest results.

It is more easily prevented than cured.

DIAGNOSTIC AND THERAPEUTIC ADJUNCTS TO MEDICAL PRACTICE AS AFFORDED BY THE LYON- MELTZER NON-SURGICAL GALL- BLADDER DRAINAGE — TECH- NIQUE—CASE REPORTS.*

By GEO. P. HAMNER, M. D., Lynchburg, Va.

The method is so extensively used at present, and so well known, that only a brief mention of the technique is necessary.

The duodenal tube is introduced into the stomach, after first cleansing the mouth and fauces, to about the 56 c.m. mark. The patient is then required to assume a reclining position on a couch or bed, and the stomach is lavaged with about 250 c.c. of a 1-12,000 solution of potassium permanganate; after which the tube is now slowly swallowed, with the patient lying on the right side, to the 76 c.m. mark. The free end of the tube is then dropped over the side of the couch into a white dish or pus basin so that the first appearance of bile may

*Read at the meeting of the South Piedmont Medical Society, at Danville, Va., November 18, 1924.

be noted. The time required for the passage of the Rehfuß or Einhorn bulb through the pylorus is variable, depending largely, of course, upon the condition of the gastric function, the pyloric orifice, and the individuality of the patient. The time is usually between thirty minutes and one and a half hours. In very rare exceptions though, fifteen minutes has been the minimum time for this stage of the operation.

As soon as the bile makes its appearance, which is an indication that the bulb is in the duodenum, about 100 c.c. of a 33 1/3 per cent solution of magnesium sulphate, which has been previously sterilized and warmed to about the body temperature, is introduced slowly through the tube. After this, aspiration is immediately begun by attaching a bottle with perforations in the rubber stopper for two glass tubes, and a two-way rubber aspirating bulb is attached for creating a vacuum in the bottle.

The first bile which flows back into the bottle with the magnesium sulphate solution is usually light in color and is recognized as bile from the common duct. This is classified as specimen "A." Later the bile becomes of a much darker hue, is thicker and more tenacious, and, according to Lyon, is recognized as bile from the gall-bladder proper. This is marked "B."

Finally, after the bile tract is completely emptied, the bile is much lighter in appearance and thinner in consistency. This specimen is labeled "C." and is recognized as fresh bile from the liver itself or hepatic duct. The three specimens having been obtained under conditions as nearly aseptic as possible, are then submitted to the laboratory for microscopical examination and culture.

Many erroneous impressions were at first formed by both the medical profession and the laity regarding this method, and some medical men scorned the idea which became prevalent that the tube could be introduced directly into the gall-bladder, and that it could be emptied in this way. Of course, no such claim was ever made by the originator, or anyone else who used the method, and the profession has now fully realized that no such claim is made by those who are doing this work.

A word here about the effects: The discomfort to the patient is negligible during the procedure, but there is a certain amount of exhaustion attendant upon it and following the

treatment, due principally, I believe, to the flushing of the duodenum by the magnesium sulphate solution which escapes into the jejunum, and also to the volume of fluid left in the duodenum after the procedure is completed. This latter comprises about 250 c.c. of a solution of Ringer's tablets in warm water. This I formerly used, but have long since abandoned it in favor of a mild, alkaline antiseptic manufactured by one of our retired physicians, and known by the trade name of "Nabuso," using 60 c.c. of this preparation in 200 c.c. of warm water. On account of the above mentioned exhaustion, I only use the drainage in practice on alternate days, treating the cases as ambulant, though some gastro-enterologists keep these cases in bed and drain every day for from three to five weeks.

But I have devoted much more time to discussing the technique than I had intended, and will now recite some cases, with the results obtained.

CASE 1.—Mrs. C., white, married, about thirty years old, has been having typical attacks of biliary colic for the past two years. When seen with her physician she was suffering distressing nausea and vomiting, with sharp cramping pains, and with acute tenderness over the entire abdomen, but greatly intensified over the region of the gall-bladder. The nausea was so severe and persistent and the pain so constant, that it was thought inadvisable to attempt gall-bladder drainage by the Lyon-Meltzer method at that time. In fact, I frankly expressed my firm conviction that this was a case of cholelithiasis, and one for the surgeon rather than for me. Her physician, who was also a surgeon, concurred in this fully, but the patient was violently averse to surgical methods and, besides, as she was very fleshy, was not considered a very favorable subject for operation. A compromise of watchful waiting was instituted, and gastric lavage resorted to for the control of nausea, and opiates given for the pain. Five days later, after a marked improvement in the patient, a gastric analysis was made and the gall-bladder drained at the same sitting. She was requested to return for another treatment on the third day, but as relief was immediate and, as later developments proved permanent she refused further treatment.

CASE 2.—Mrs. B., white, young married woman about thirty years old. When seen by me she was suffering from what appeared to

be a plain case of acute catarrhal jaundice. All of the typical text-book symptoms were present: nausea, vomiting, itching, constipation, and the skin deeply colored with bile. As she had been suffering several days with these symptoms, the whole abdominal region was quite tender and sensitive to the touch. This soreness was attributed to the persistent retching. There was no characteristic pain in this case.

The first attempt at drainage was unsatisfactory, as only a small quantity of tenacious mucus and a number of short, white, tough plugs of mucus about as large around as a crow's quill were obtained. But on the second attempt a large quantity of black, thick, viscid bile came into the bottle following the apparent dislodging of more small plugs of mucus similar to those obtained on the first day. Subsequent drainages were accomplished without difficulty and, after the third treatment (the treatments being given on alternate days), the jaundice began to disappear, and in less than ten days the skin was clear. She had about six treatments and at this date, two years later, she has had no further trouble with her gall-bladder. The laboratory findings in this case were negative to any bacterial infection of the bile.

CASE 3.—This was a young married woman of about thirty-five, who gave a history of having had a cholecystectomy eight months previous to the time of her present illness. The operation had given relief from the pain and tenderness she had experienced around the gall-bladder; no gall-stones had been found. About ten days before she was seen by me she began having more trouble, and rapidly became jaundiced. When seen in consultation with her physician she was deeply jaundiced, and there was nausea and vomiting. She complained of pain and tenderness over the entire hepatic area, and was running a temperature ranging from 99.5° to 101° F. Her physician did not feel that it was a case for further surgical intervention and asked if I thought the Lyon-Meltzer treatment would afford her relief. I advised its trial at least.

On the first treatment very little bile was obtained, but, as in the preceding case, a quantity of mucous plugs were noticed in the solution of magnesium sulphate used for facilitating the flow of bile. At the second attempt more bile was obtained, but even this was not completely satisfactory, though the patient was

already improved, with a normal temperature, and skin and sclera clearing rapidly; not until the third treatment though, did there appear to be a complete emptying of the gall-bladder, when rather suddenly a large quantity of inky black bile appeared, and of the consistency of thick syrup.

The patient had so far recovered now that she was allowed to leave the hospital and go to the home of a relative in the city. The two subsequent treatments were given at the office, and the patient returned to her home in North Carolina. She expressed herself as feeling perfectly well again, and her skin was clear.

CASE 4.—Miss R., a maiden lady of advanced age, referred while already hospitalized. She had nausea and vomiting, with no appreciable pain, but appeared extremely emaciated and debilitated. On attempting to perform gall-bladder drainage a large quantity of tenacious, glairy mucus was aspirated from the stomach, and the tube was greatly delayed in entering the duodenum. The flow of bile was scanty and of a peculiarly turbid character. On submitting to the laboratory, the culture in all three specimens showed heavy growths of colon bacilli. She was treated by gastric lavage and gall-bladder drainage several more times, then put on dietary and tonic treatment until she was in physical condition for a cholecystectomy. This was subsequently done, and the gall-bladder found to be a veritable pus sac, with multiple abscesses in its mucosa.

CASE 5.—S. L. F., male, white, about fifty years old. Gave history of having been in robust health until about ten months previous to present illness, when he began to lose weight. Upon examination sugar was found in urine. He was pronounced a diabetic by his physician and treated for this condition, principally by diet, until he was sugar free. No insulin was given. He was kept on a rigid diet, and remained slightly under weight until present illness, which came in the form of a sudden let down after a strenuous political campaign. On examination by a friend whom he was visiting, and who is a physician, he was found to have a temperature of 103° F., and was very much exhausted. He was advised to enter a hospital in Lynchburg and placed himself under a physician of that city. Examination of his mouth disclosed a bad case of pyorrhoëa and all of his teeth were extracted. The high temperature persisted, however, and the most complete physical examination, aided by X-ray

failed to afford an explanation of the temperature, nor could it be controlled by any form of anti-febrile medication. It began to rise regularly every day about 4 P. M., reaching the fastigium about 8 P. M., and would gradually subside to normal before midnight, only to repeat the same performance the next day on the exact schedule time. There was never any sugar found in the urine now, though I believe the blood sugar index was a little above normal. There was never complaint of pain or other symptoms at any time except extreme weakness and loss of appetite.

The general debility increased at an alarming rate from day to day. It was at this stage, after consultation by his physician with Dr. Vanderhoof, that I was called in and requested to make a gastric analysis, and then to obtain bile by the Lyon-Meltzer method for laboratory examination. The Rehfuess test meal was given and a great quantity of thick, glairy mucus was obtained with the crackers and water at each aspiration. The analysis showed an almost total achylia with general insufficiency of peptic secretion.

The succeeding day, gall-bladder drainage was accomplished and a rather small quantity of pale, yellow, turbid bile obtained, which was of the same appearance and consistency throughout the drainage period, eliminating any possibility of classifying the bile as "A." "B" and "C" bile. However, three separate specimens were collected corresponding with that from the common duct, the gall-bladder proper and the hepatic duct as nearly as could be estimated. All three specimens showed a very heavy colon bacillus culture.

Drainage was now practiced daily and the temperature began a rapid decline from the first treatment and subsided entirely in about four days. The patient was put on a much more liberal diet, adding an appreciable amount of carbohydrates, and watching the urine daily, of course, to detect any reappearance of sugar. He was given dilute hydrochloric acid in liberal doses, one drachm three times a day after meals. This was all the medication used. He continued to improve and the bile took on a normal aspect.

Treatment by drainage was now only resorted to on alternate days instead of daily, and this was kept up for four weeks; then twice a week for two more weeks. He was now on full diet, and, much against our advice, was taking large amounts of sweets daily.

Gastric analysis on December 5th, about two months after first seen shows the gastric secretions normal. The patient had gained, or rather re-gained, twenty-one pounds, lost during the first stages of his illness and has remained well for about twelve months.

CASE 6.—W. T. R. This was a young white man about twenty-five years old, employed in one of the shoe factories of the city. He consulted me for "indigestion" and a persistent, dull pain in his right side just below the ribs. A gastric analysis showed very little if any abnormality, and the symptoms did not point to a gastric or duodenal lesion. He was averse to an X-ray examination of the gastro-intestinal tract for financial reasons, and after being treated dietetically and with gastric lavage he made some improvement, which, however, was only temporary, and was finally looked upon by me as a neurasthenic. He gradually drifted from my service, a fact for which I was not really sorry, nor did I really feel resentful, as I did not feel that I had helped him any.

Several months later he came in and told me that his regular physician had insisted on his being X-rayed, and that the doctor had requested that I go over the plates with the roentgenologist. Later the physician himself called me and made the request. A study of the plates with Dr. Spencer showed the appearance of an indentation of the duodenum for about half of its lumen as if some object about as large as a black walnut had impinged against it. The most plausible explanation of this rather unusual phenomenon was that it was an enlarged gall-bladder. Lyon-Meltzer drainage was resorted to and immediate relief was obtained after a large quantity of black viscid bile was obtained. Three more treatments were given to insure free drainage, and he has remained well for the past eighteen months.

CASE 7.—G. C., white male, twenty-two, referred by his family physician who informed me that he had been very markedly jaundiced for five weeks, but, with the exception of a slight anorexia and nausea at times and an occasional rise of temperature to about 99.5, there were no untoward symptoms, and aside from the pronounced jaundice he suffered no other symptoms. He also added that he had used all the classical methods in an endeavor to clear up this jaundice but without avail, and the patient was becoming more deeply jaundiced daily.

When he came to see me, he was without exception the worst jaundiced person I had ever seen. Every inch of his integument was of a brilliant canary color except his cheeks which had taken on a decidedly greenish hue.

The symptoms were so mild in comparison to his condition that it was apparent this was a case of acute catarrhal jaundice due to biliary stasis. Drainage was instituted and he was directed to return two days later for a continuation of the treatment. When he returned he said there was some improvement, though I told him frankly I could not see it. Whereupon he bared his leg from ankle to knee, and there was a perceptible clearing of both legs, but no where else.

After several more treatments his skin showed a marked improvement over the entire body and after seven treatments he was clear, had gained seven pounds, had a splendid appetite and expressed himself as feeling perfectly well again.

SUMMARY

1. This method of diagnosing and treating certain forms of gall-bladder disease certainly has its application, and can be relied upon to give results.

2. No claim for a panacea for all gall-bladder trouble is made for it by its advocates. There are failures and disappointments met with in its use as in all other medical and surgical procedures.

3. It sometimes can be used as a valuable adjunct to subsequent surgical procedure in tiding the patient over a condition when surgical interference would not be advisable.

4. As shown in at least one of the foregoing cases, it afforded relief and, apparently, a cure in a case in which there was a recurrence of alarming conditions following removal of the gall-bladder by surgery.

207 Wall Building.

A PLEA FOR MORE BLOOD SUGAR EXAMINATIONS.

By WALTER P. ADAMS, M. D., Norfolk, Va.

Since the days of Claude Bernard and his famous puncture of the fourth ventricle of the brain, there has been an ever increasing desire for information concerning the carbohydrate metabolism of the body. However, with all the brilliant work of the investigators, it remained for the important discovery of Banting and Best, of Toronto, only a few years ago, to lend new stimulus to the subject.

The sugar supply of the body comes from carbohydrates, proteins, and fats, fifty-eight per cent of protein material digested yielding the same type of glucose as carbohydrates and about ten per cent of fat the same. This glucose normally undergoes a change in structure, which allows the liver to store some of it as glycogen to be used later as necessary. The remainder is carried to the muscles and other tissues where some of it is oxidized and some of it stored as glycogen. Some of this also enters into the formation of body fat.

It is now known that the internal secretion of the pancreas (insulin) is intimately concerned with this change in chemical structure of the glucose which is necessary before glycogen may be formed. Consequently, this pancreatic secretion is all important in the regulation of the amount and type of glucose found in any portion of the body. In abnormal glycemias—hyper, for instance—we find an insufficient removal of this unchanged glucose from the circulating blood and *vice versa*, the reverse in hypoglycemia.

It is interesting to note the maintenance of a nearly uniform concentration of blood sugar in the normal body, no matter what is eaten. The mechanism for the removal of sugar from the blood is so perfect that even after a heavy carbohydrate meal the total blood sugar is only slightly increased. Also, after prolonged starvation, the approximate percentage of blood sugar is maintained almost up to death. This has been particularly investigated by Harris and others, in patients with neoplastic obstruction of the upper alimentary tract.

As pointed out above, we can consider hyperglycemia as being due to lack of insulin secretion by the body. If this hypoinsulinism becomes so marked and so continuous as to cause the excess sugar in the blood to permeate the renal epithelium, we have the well known condition of diabetes mellitus. Hyperglycemia is the basis of all trouble in diabetes. The excess of sugar renders the blood a favorable culture medium for pus organisms. The thirst is caused by the lowered water content of the blood. Polyuria occurs whenever there is an increased blood sugar as evidenced by the intravenous glucose treatment of cardiac or renal dropsy. Tissue resistance is markedly lowered. When we acquire a normal blood sugar in a previous diabetic, we see a disappearance of all these untoward symptoms. However, with the progress of the disease there seems a tendency

to moderate rises of blood sugar and, consequently, in this type of patient, a normal urinalysis often gives no assurance that the blood has continued at a normal level. It is here that a blood sugar examination is quite necessary.

Almost as frequently as we see diabetics, we see cases of hyperglycemia without glycosuria. These patients are potential diabetics, but it is impossible to classify them as such. They can never be found and helped without the aid of blood chemistry. Just as there are no two faces just alike, there are no two kidney thresholds that withstand the same amount of hyperglycemia, and a "renal leak" may never occur if the kidney threshold is high. Many patients are seen whose blood sugar is .2 per cent to .3 per cent and who at no time during observation excrete sugar. It is accepted that a nephritis tends to raise the renal threshold for sugar so that as a nephritis becomes more severe, any glycosuria, if present, becomes less and less pronounced. But the majority of this type of patients are not nephritics. The blood sugar may only be slightly above normal limits; if so, repeat the blood sugar examination in conjunction with one of the glucose tolerance tests and note the type of curve occurring at stated intervals.

These are important patients, some being very poor surgical risks. At any rate, later in life they will probably have cause to thank their physicians if they have treated them as potential diabetics. Those belonging to this type usually have some outstanding focus or foci of infection and are regularly indiscreet in their taking of carbohydrate foods. Their high blood sugar is not persistent with proper diet but they should return constantly, at increasing intervals, for further blood sugar examinations.

It is well to remember the large amounts of experimental data obtained by workers in carbohydrate metabolism. There is probably some regulatory effect of the adrenal secretion of the body on the blood sugar. Cases of Addison's disease have been observed in which the blood sugar was abnormally low. In a normal subject injections of epinephrin cause immediate increases in blood sugar with or without glycosuria. This is due to the rapid conversion of the glycogen of the body into blood sugar. Puncture of the fourth ventricle of the brain will bring on the same occurrence. In the case of epinephrin, the glycogen is taken from the muscles and liver, whereas, in punc-

ture of the ventricle, the liver glycogen is all that is transformed into blood.

There are also various drugs and agents which act as either liver or kidney poisons, or asphyxial agents, and cause hyperglycemia. A main factor in these is the lowering of the renal threshold, causing glycosuria either constant or inconstant in all of these cases. The hyperglycemia is apparently due to the discharge of sugar into the blood from the stored glycogen of the body.

In contradistinction to the insufficient removal of glucose from the blood stream, we have the clinical entity, lately brought out, known as hyperinsulinism. There is evidence that certain people are prone to attacks simulating an overdose of insulin, which are relieved by the ingestion of carbohydrates. The attacks occur before meal time and consist of marked nervousness and weakness and at times tremors simulating convulsions. The patients are poorly nourished, have a low blood pressure, and often have acute heart attacks with beginning pulmonary congestion, tachycardia, and prostration. It is quite possible that the over-utilization of glucose of the blood may have depleted the heart muscle reserve of glycogen, then myocardial weakening follows as a result of under nutrition of the heart muscle, and the circulation is more or less permanently affected. As mentioned before, a lowered blood sugar is also caused by adrenal insufficiency (Addison's disease).

From the above, I believe we will feel justified in having blood sugar examinations done as a routine matter in more cases than in the past. There are many cases which are impossible to diagnose or treat without so doing, and others that we can help in a more permanent and satisfactory way if we have this knowledge concerning their carbohydrate metabolism.

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 109 *College Place*.

UNREASONABLE

A noted financier was taken seriously ill at ninety years old and felt that his end was near.

"Nonsense," said the doctor, "the Lord isn't going to take you until you've passed the one hundred mark."

"No, my friend," said the aged banker, "that wouldn't be good finance. Why should the Lord wait until I reach par when He can pick me up at ninety?"
 —*Business Magazine*.

ENTEROSTOMY, A LIFE SAVER.*

By SAMUEL ORR BLACK, M. D., F. A. C. S.,
Spartanburg, S. C.

Enterostomy is a veritable life saver in many cases of intestinal obstruction, post-operative and otherwise.

Abdominal surgeons agree that whenever possible the offending obstruction should be released and removed, yet there are many instances in which the patient's condition prohibits such a formidable undertaking.

Herein lies a fertile field for enterostomy, for, by it, intestinal drainage can be established. As this drainage takes place the tension and toxemia lessen, the general condition improves, and as strength and vigor return, the patient has within a short time been transferred from an inoperable and almost hopeless state to an operable and hopeful one.

Enterostomy is a simple procedure, easily and quickly performed, under local anaesthesia, in the patient's room.

There are several different techniques or types of operation. These are of minor consideration. The chief aim in its use for the relief of obstruction is to get an opening into the lumen of the bowel through which the intestinal contents might escape. This was done in the early days by means of a trocar plunged through the abdominal wall into the intestine. Later on, as asepsis came into use, surgeons at different times have devised different methods of inserting a tube through the abdominal wall into the bowel.

Even yet, however, as Long states, but comparatively few appreciate the tremendous possibilities of this truly remarkable life-saving procedure.

In addition to its use for the relief of obstruction, it is of value as an avenue into the stomach (gastrostomy) when the esophagus is closed by stenosis or stricture, or as an entrance into the jejunum (jejunostomy) for the transference of nutrition should the pylorus be occluded.

The purpose of this paper, however, has to do more with enterostomy as an obstruction reliever than with it as a food chute to starving patients.

Intestinal obstruction is always a serious condition. It may be complete or incomplete. It has been defined as an obstruction to the

onward movement of the bowel contents due to a mechanical block.

Strangulation obstruction is the most serious and rapidly fatal form. Obturation obstruction is less serious and less rapidly fatal. In this form of obstruction liquids and gases in varying quantities pass the obstructing point.

A patient with obturation obstruction may live for five, ten, or more days. Recently, we had one referred to us whose bowels had not moved for thirteen consecutive days, though he had passed small quantities of gas daily. He had an annular carcinoma of the lower sigmoid. Enterostomy afforded him prompt temporary relief.

Not infrequently foreign bodies cause obstruction. Of these, gall-stones are the most common. They lodge in the middle and lower ileum four times more frequently than they do in the duodenum and jejunum combined, or at the ileocecal valve.

Murphy states that foreign body ulceration tends to occur below the ileocecal valve rather than above it. He described a case of obstruction due to plum pudding which the patient had eaten many years previously. The pudding formed the nucleus of a large balllike mass, which had slowly increased in size by fecal deposit from time to time to the outer surface.

Early operation for mechanical obstruction is practically always successful. Delayed operation is practically always useless. It is more fatal than delay in any other abdominal condition except acute gastro-intestinal perforation into the free peritoneal cavity (Murphy).

For suspected obstruction in recently operated cases, it is our experience that, inasmuch as prompt recognition of this dreadful condition is extremely difficult and at times almost impossible, it is better to re-open and find no obstruction than to open too late and find complete obstruction with generalized peritonitis.

It is in this type of obstruction where the patient's general condition is already poor from recent laparotomy, that enterostomy is of especial practical and life-saving value.

Obviously, formidable laparotomy is again entirely out of the question. However, enterostomy under local anaesthesia performed in the patient's bed by opening the abdomen and pulling up into the wound the first loop of distended gut, putting a catheter into it, for the purpose of drainage, dropping the bowel back into the abdomen, and closing the ab-

*Read at the North and South Carolina Sectional Meeting of the American College of Surgeons, Winston-Salem, N. C., April 4-5, 1924.

dominal wall up to and around the tube, will cause practically no additional shock. It is well to stitch the omentum to the bowel around point where catheter enters.

Within a few hours the patient's pinched facial expression will lessen, the pulse will slow, the pain will cease, the distention will disappear, and the picture will change from one of extreme anguish to one of placid comfort.

Thus, the crisis will have been passed and ere long the patient's condition will permit a second laparotomy, if such be necessary, to release the obstructing point.

Truly, this is a life-saving procedure. Its results frequently are brilliant and so gratifying as to be favorably compared with the quick relief afforded by intubation operation for laryngeal diphtheria.

Recorded below are a few cases in brief:

CASE No. A-582.—Female, aged forty. Subtotal abdominal hysterectomy, right salpingo-oophorectomy and appendectomy, for multiple uterine fibroids, right-sided suppurative tubo-ovarian disease with mass formation in right lower pelvis in which appendix was enmeshed. Right pelvis drained. Uninterrupted convalescence, discharged from hospital on sixteenth day.

Two months later she was seized with sudden severe abdominal cramps, followed shortly by vomiting. Was seen the following day by a physician. She refused operation until the fifth day, at which time enterostomy was performed. She died two days later. Autopsy revealed intestinal perforation at site of obstruction and generalized peritonitis. This was a case of delayed obstruction coming to operation. She procrastinated too long.

CASE No. A-710.—Female, aged forty. Bilateral salpingectomy and appendectomy for bilateral hydrosalpinx and fibrous appendix. Smooth convalescence until the afternoon of the seventh day, when she developed sudden severe epigastric pain, followed in forty minutes by complete collapse.

She reacted to stimulation within two hours. During the night and early forenoon of following day mild paroxysms of pain recurred. That afternoon severe pains again set in. The old scar was re-opened, and a complete obstruction with much bloody fluid was present in the abdomen. The obstruction was released and where it had been attached to the under surface of right broad ligament the wall of

bowel was almost necrotic. Enterostomy was performed at this weakened spot. She made a prompt and uninterrupted convalescence.

CASE No. A-1954.—Female, aged fifty. Total abdominal hysterectomy, October 10, 1922. Uninterrupted convalescence. Eight days after leaving the hospital she developed cramping epigastric pains, followed by nausea and vomiting. This continued off and on with varying degree of severity for three days when she was re-admitted to the hospital, her condition being grave. Enterostomy was performed. She rapidly improved and later laparotomy was done in order to release the obstruction. She stood the operation well and recovered. Enterostomy turned an inoperable into an operable state.

CASE No. A-2448.—Child, age, nine years. Acute gangrenous appendix. Three days after operation child was not doing well. He was distended and hiccoughing. His pulse was quickening, and he was complaining at intervals of sharp pains. Obstruction was suspected. Following day his condition remained unimproved. Under novocaine anaesthesia, right inguinal enterostomy was performed. The ileum was found to be greatly distended and purplish in color. Intestinal drainage promptly set in and from then on recovery was without incident.

CASE No. A-2633.—Female, aged twenty-three. Operated on July 20, 1923, for right-sided ectopic pregnancy. A mass the size of a grape fruit was found, consisting of a tubal pregnancy, the ovary and the appendix. The patient was drained as there was some mucopurulent material in the necrotic ovary and its mass. Operator's note: convalescence to be stormy, patient quite sick.

On the following day she was greatly distended in the forenoon with intermittent hiccough. That afternoon she developed intestinal cramps, and began to vomit. Her pulse was accelerated, and capillary cyanosis was detected. The following morning she was having rather severe pains for which morphia was required. She was truly a sick woman.

Enterostomy was resorted to as a last and desperate effort. Drainage began almost at once. The tube came out on the fourth day, the intestinal drainage ceased three days later, and the patient recovered.

CASE No. A-3078.—Female, aged twenty-two. Appendectomy performed elsewhere in January, 1923. In March, 1923, was in bed two

days with severe upper abdominal cramps and vomiting. Treated for gall-stone colic. In September, 1923, same thing recurred. On the afternoon of November 10, 1923, when about seven and one-half months pregnant, she was seized with generalized and agonizing cramp-like pains throughout abdomen. Soon thereafter, vomiting began. Bowels moved twice within two hours; afterwards nothing came through. Enemas gave no relief. The uterus was not contracting, the cervix not dilating, the white blood count was 12,200, polys eight-six per cent. Four hours later she was still suffering great pain, notwithstanding two injections of morphia, one-quarter grain each, at short intervals.

The following morning she was transferred to the hospital where laparotomy revealed a seven and one-half months pregnant uterus and a markedly distended and discolored ileum. There were multiple points of obstruction, some caused by a definite rope-like band crossing the bowel, some by lateral intestinal adhesions, some by attachment of one or more loops of ileum to the under surface of the abdominal wall scar, and some by intestinal adhesion to the under surface of the uterus itself.

The operation was both long and difficult. At the beginning of the operation her condition was good; at the close of the operation there were many points of raw surface on the intestine, and the patient's general condition was poor. Enterostomy was performed high up in the ileum.

On the fourth day the patient aborted, and on the sixth day the tube was removed. On the eleventh day intestinal drainage ceased and the patient made an otherwise uneventful recovery.

In conclusion, please note that we have but referred in the briefest terms to the use of enterostomy as a means through which food can be put into the alimentary canal, and, also, that as regards its use in intestinal resection, we have made no mention whatsoever. Here, it is also of inestimable value, at times, when used just proximal to the suture line to lessen distention and suture tension by carrying away the gases, thus minimizing the danger of leakage along the suture line.

We cannot refrain from repeating that, when and wherever used for the relief of intestinal obstruction, it should be used early after the symptoms first announce the obstruction in order to get the maximum benefit.

When we learn to early diagnosticate post-

operative obstruction, then the mortality of abdominal surgery will be lessened. There is hardly an excuse for a post-operative obstructive death, as it can usually be relieved by prompt recognition and early recourse on the part of the surgeon to enterostomy operation.

Mary Black Clinic.

SOME ACQUIRED CHARACTERS.

By CASPER L. REDFIELD, Chicago, Ill.

A character is primarily a sign or mark. A letter of the alphabet is a character, and an inscription consists of a series of characters.

To acquire means to obtain by effort or by purchase and *to inherit* means to receive from an ancestor or predecessor. If you dig up or buy a tablet containing some ancient inscription, you will acquire some characters. When you die, your heir will inherit that tablet, and there will be an indisputable case of the inheritance of acquired characters.

The word "biology" comes from a Greek word meaning life. A biological character means some characteristic peculiar to life as such, and not some characteristic of a physical body. A biological acquirement is some addition, modification or qualification of the thing we know as life, and not some change in some physical body. And biological inheritance means an inheritance of life qualities and not a legal inheritance.

A child gets the measles. In due time he recovers, and is thereafter immune to further attack of the measles. The fact that he got the measles in the first instance is evidence that, at that time, he did not have the power necessary to resist the attack. The fact that he is immune after recovery shows he now has a power of resistance which he did not have before. That new power is an acquired character.

Measles is presumed to be caused by some parasite which we may assume to be some bacterium. The course of the measles is such that it can be shown that the disease cannot be produced by any thing other than some living organism which multiplies by reproduction. As a dead body is quickly destroyed by bacteria which do not harm it when alive, it will be evident that this new resistance to measles is a characteristic of life and not a characteristic of any bodily structure. It is, therefore, a biological character biologically acquired.

Referring back to our first example, the

characters on the tablet are not characteristics of life as such. They are non-biological things. As they can be obtained by the legal process of purchase, they can be obtained in a non-biological way. As they are conveyed from one person to another in a legal way, that way is also non-biological. In other words, we may have inheritance of acquired characters in which every element of the combination is non-biological.

Referring now to the acquired resistance to measles, we have a biological character biologically acquired. If this resistance is transmitted to offspring, then we have the inheritance of acquired characters, every element of which will be biological. That such acquired resistance is, in fact, inherited by offspring may be seen by reference to the history of measles. The white child, whose parents and earlier ancestors acquired resistance to measles by having that disease, does not have enough resistance to be wholly immune, but he does have enough so that the disease is not serious to him. But when measles is carried to people whose parents did not have it, then the disease is very deadly. The physician who has a case of measles on his hands should inquire if the parents had had that disease.

There are two kinds of characters, one kind is biological and the other is non-biological. There are two ways in which things are acquired, one way is biological and the other is non-biological. And there are two kinds of inheritance, biological and non-biological.

The inheritance of acquired characters is a composite made up of three factors. If all three of the factors are biological, it works, as in the inheritance of acquired resistance to disease. Also, it works if all three of the factors are non-biological, as in the legal inheritance of characters inscribed on a tablet. But an incongruous composite of the biological and the non-biological will not work. Thus, the characters inscribed on a tablet cannot be transmitted through the germ from father to son, and a person cannot inherit resistance to disease by a legal process.

For many years we have been told that acquired characters are not inherited, but when we examine the cases cited to prove that point, we find that they all consist of mixtures of the biological with the non-biological. For example, Weismann cut off the tails of mice and then bred those mice. He then cut the tails from the progeny and bred them to get a third

generation, and so on for many generations. The last generation had tails just as long as those on the first one. As this is cited, even up to the present day, as evidence that acquired characters are not inherited, we will give a little time to considering it.

When the tail is removed from a mouse, that mouse is in a tailless condition. But as taillessness is just as observable in a dead mouse as in a live one, it is evident that taillessness is not a characteristic of life as such, and consequently it is not a biological character. The inheritance under consideration is biological inheritance. Weismann's experiment showed no more than that some non-biological thing is not biologically inherited.

When Weismann cut off the tail of a mouse there was produced a wound which later healed. The removal of the tail was a non-biological operation of the environment, as is evident from the fact that it might be by any mechanical means. But the wound was not healed by the environment, and will not be healed in any mouse which is dead at the time the tail is removed. The wound healing was an operation carried out by the life in the mouse, and consequently was strictly biological.

When Weismann cut off the tails of the first generation of mice, the wounds healed and he bred those mice to get a second generation. Again he removed the tails, and after the wounds healed he bred the second generation to get a third generation, and so on for many generations. Now it happens that the wound healing was the only biological thing having anything to do with Weismann's tail-cutting experiments, and he did not tell us about the biological problem in front of him. Neither have any of Weismann's followers investigated the biological problem involved. We have not yet been told whether the wounds healed more readily in the later generations than in the earlier ones.

Right here I want to draw a distinction between a biological character and a biological product. A biological character is a characteristic of life itself. A biological product is something produced by the operations of life. A cow can produce milk. That is, she can produce milk if she is alive, but not if she is dead. As a consequence, the power of producing milk is a biological character, but the milk itself is a biological product. There is a clear distinction between milk and the power

of producing milk. They are not in the same class of things.

The tail of a mouse is a biological product and not a biological character. And the character of a tail is a character of a product and not a biological character. The thing which passes by heredity through the germ of a mouse is the power of producing a tail, and not the tail itself or any character of the tail. Taking away the tail of a mouse after it has been produced is not taking away the power of producing a tail, any more than taking milk from a cow is taking away the power of producing milk.

Broadening the statement just made, we may say that no action of the environment on a living body will, of itself, produce the slightest effect on the inheritable power of growth which originally produced the body. The utmost that any action of the environment can do is to induce a biological activity which in turn may modify a biological character, but it will be the activity and not the environment which will produce the result. Thus, if we amputate an organ which will regenerate, and keep repeating the operation after each regeneration, the animal's powers of regeneration will be increased by exercising them, and that increased power of regeneration will be transmitted to offspring. Kammerer demonstrated this by cutting off the siphons of sea squirts. In regenerating, those siphons grew to be a little longer than before, and by repeated regenerations they became of great length. When those animals were bred, the offspring had long siphons like their parents. What those offspring inherited was increased power of siphon growing.

One of the things advanced to show that acquired characters are not inherited is the fact that children talk the language of those with whom they are brought up, and not the language of their ancestors, when the two languages are not the same. But this is another example of confusing the biological with the non-biological. There is a fundamental difference between the power of learning and the thing learned. The power of learning is characteristic only of living things, and consequently is strictly biological. A dead man cannot learn anything in spite of the fact that his body is a biological product. The thing learned is not a characteristic of life, and consequently it is non-biological.

Mr. Reich, of Bremen, Germany, a bird

breeder, keeps a great variety of cage birds, among which are canaries and nightingales. He wanted to get canaries which would sing the nightingale song, so he put successive generations of canaries under nightingale tutors. In about five years he had canaries which would sing the full nightingale song, and in about five years more he got canaries which sang the nightingale song without instruction.

This looks like a case of the inheritance of something learned and remembered, but that is not what really happened. A bird's song consists of a few notes repeated over and over many times a day for years together. Such continued repetition of the same thing develops the power of doing that particular thing at the expense of other powers. Powers are characteristic of life, and consequently are biological and can be biologically inherited. After Reich's canaries had practiced for ten years on one song, when his young birds opened their mouths to sing, they sang the song for which they had developed their powers.

Smallpox is one of those diseases for which a person acquires immunity by having it, the same as he acquires immunity against measles by having it. Cowpox is known to be a weak form of smallpox. Vaccination is based on the principle that if a person exercises in a particular way he develops powers in that way. When a person is vaccinated he is given a very mild case of smallpox, and in fighting this mild case he develops powers of resisting small attacks of fully virulent smallpox.

But powers which are not exercised gradually decline. If an attempt be made to vaccinate a person soon after he has been vaccinated successfully, it will be found that the second vaccination will not take. But let ten or more years go by, and he can be vaccinated again. The immunity which he had acquired declined very much in the years during which he was not acting to resist vaccine virus.

About one hundred years ago vaccination became general in Europe and America, and the majority of us are descended from two or three generations of vaccinated ancestors. At the present time, smallpox is not nearly the serious disease it was a hundred years ago. Somehow, there has got into the white race a degree of resistance to smallpox which did not exist before, and the only way resistance can be obtained is by fighting the virus itself. We have it by reason of the fact that our ancestors were vaccinated.

A person who lives where other people live is being continually "vaccinated" against various diseases by coming into contact with small numbers of pathogenic germs. Usually he does not know of the contact, because his powers of resistance are fully able to take care of the case without giving a distress signal. Occasionally, the attack is heavy enough to make him feel indisposed for a few days, and more rarely he calls on a physician for help.

Tuberculosis is one of those diseases which a person is certain to meet if he spends any time in a modern city. Autopsies disclose the fact that about ninety per cent of those adults who die from other causes, have, at one time or another, been attacked by tuberculosis and have recovered without being aware of such attack. Under such conditions, it is obvious that the older a person is, the greater is the probability that he has been attacked by tuberculosis and recovered, and in recovery has developed resistance to that disease.

At Frodsham, England, there is a sanitarium at which investigation was made into the family relationship of 381 tuberculous patients. It was learned whether each patient was a first, second or later child, and it was also learned how many other children there were in the families from which these tuberculous patients came. Thus there was laid a foundation for determining which children of the family are least resistant and which are most resistant to tuberculosis. The results show that the older the parents are when their children are born, the greater is the resistance of those children to tuberculosis. The first child is more than twice as liable as the third and fourth children, and more than three times as liable as the eighth and later children of the same parents. Clearly, if the parents get tuberculosis and recover, the offspring inherit the resistance the parents acquired.

When a physician has a tuberculous patient he should inquire not only in regard to the history of the parents of the patient, but also as to the age of the parents when the child was conceived. Because persons get tuberculosis and recover without being aware of the attack, information as to the age of the parents is not conclusive of anything, but it helps in determining probabilities.

The physician need not stop at tuberculosis, measles and vaccination. Acquiring resistance to disease by fighting it is very common, and resistance acquired in this way is inherited by

offspring. The extent to which acquired resistance is inherited is determined by the magnitude of the acquirement and the length of time which has elapsed since the acquirement terminated. By having smallpox a person acquires an immunity great enough to last a life time. By vaccination he acquires an immunity which lasts for a few years only. In the case of a child with the measles, the questions are: Did the parents have measles? How long ago was it? How severe were the attacks? Putting the answers to these questions with other information will help in prognosis.

1542 *Monadnock Block*.

The Truth About Medicine

In addition to the articles enumerated in our letter of January 31, 1925, the following have been accepted:

H. K. Mulford,

Tuberculin Intracutaneous (Human Type)—Mulford.

Parke, Davis & Co.

Mercurosal Ampoules.

E. R. Squibb & Sons

Squibb's Liquid Petrolatum with Agar.

NEW AND NON-OFFICIAL REMEDIES

Antimony Thioglycollamide.—The triamide of antimony thioglycollic acid. It contains not less than 30 per cent of antimony. Antimony thioglycollamide and antimony sodium thioglycollate have been tested on rats, rabbits and dogs inoculated with trypanosomiasis by Rowntree and Abel. These workers suggested the employment of these antimony compounds in the treatment of human trypanosomiasis and the larger animals. Randall has used both of these antimony compounds intravenously and intramuscularly in granuloma inguinale with marked success. In the doses employed they were less toxic than tartar emetic and the results were more favorable. From the available evidence the experimental use of these compounds in kala azar would seem to be justifiable. Hynson, Westcott & Dunning, Baltimore. (Jour. A. M. A., Feb. 7, 1925, p. 441.)

Cinchophen.—B. P. C.—A brand of cinchophen—N. N. R. For a discussion of the actions, uses and dosage, see New and Non-official Remedies, 1924, p. 93 Benzol Products Co., Newark, N. J.

Hoyt's Protein Cereal.—Hoyt's special gluten flour (New and Non-official Remedies, 1924, p. 195) cooked and made into flakes. Pure Gluten Food Company, Brooklyn, N. Y.

Mercurettes.—P. D. and Co.—Brique'tes each containing finely divided metallic mercury 3.25 Gm. (50 grains) incorporated with theobroma (cacao butter) and perfumed. The actions and uses of mercurettes are the same as those of ointment of mercury U. S. P. It is claimed that in the treatment of syphilis and certain forms of parasitic skin disease where ointment of mercury has been employed, the use of mercurettes permits a more accurate dosage and is more convenient and less disagreeable. Parke, Davis and Co., Detroit.

Tablets Iodo-Casein with Chocolate.—Each tablet contains iodo-casein (New and Non-official Remedies,

1924, p. 156), equivalent to 0.01 Gm. iodine. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., Feb. 28, 1925, p. 675).

PROPAGANDA FOR REFORM.

Barbital and Unessential Modifications.—The British Medical Journal discusses the multiplicity of barbituric acid hypnotics which English physicians are importuned to prescribe. In America a similar condition exists. The numerous barbital derivatives and mixtures of these with other drugs result from the fact that we have no satisfactory method of evaluating the hypnotics. Apparently the proprietary interests have taken advantage of this situation, so that the proponents of these barbital derivatives claim various specific advantages for them. British physicians complain of the many market names for substances which have practically the same action, yet with no indication of their derivation from the original and best known drug, barbital. In this country, the Council on Pharmacy and Chemistry provides information concerning the composition and actions of just such products. Until scientific investigators have devised a satisfactory evaluation of this class of hypnotics, it would be much more in keeping with scientific advancement were proprietary houses to refrain from putting out new derivatives, and physicians to limit their prescriptions to the two drugs, barbital and phenobarbital—the only barbital preparations, which have been accepted for New and Non-official Remedies. The danger to the public of the use of barbital hypnotics is of growing concern. Barbital itself, has been the cause of many accidental deaths, and its use is not free from addiction. In England, barbital is included in the poison schedule and further restrictions of its sale is now being considered there. (Jour. A. M. A., Feb. 7, 1925, p. 445).

Endocrinology and the Mammary Gland.—Adverse reports have recently been published in regard to the alleged functions of preparations of the mammary gland. A survey of the literature might lead one to believe that the activity of this structure is in some way related to the menstrual function and that the gland exerts an inhibitory effect on the ovary. Yet carefully controlled administration of mammary gland substance, by Charlton and Rickey, to women of reproductive age has failed to furnish evidence of constant effects, if any, on ovarian activity in persons with normal or abnormal menstrual histories. The possible influence of mammary substance on the estrual cycle of animals has also been studied. The results were entirely negative. In no instance was any effect from feeding mammary gland apparent. The facts at hand fortify the position of the Council on Pharmacy and Chemistry to omit mammary gland preparations from New and Non-official Remedies, because there is no clear-cut evidence to show that administration of available products is of value. (Jour. A. M. A., Feb. 7, 1925, p. 443).

The Mollgaard Method in Tuberculosis.—The recently published book by Mollgaard and his collaborators on the new gold treatment of tuberculosis, gives the properties of "Sanocrysin," which is sodium aurothiosulphate, and the animal experiments which have been carried out. The serum from calves previously injected with killed tubercle bacilli and tuberculin, which is used in connection with the gold salt, is regarded as an antitoxic serum that neutralizes toxins liberated in the tuberculous animal by the action of the drug. Tests are reported on the effects of "Sanocrysin" and serum in calves injected intravenously with bovine tubercle bacilli.

The results are said to be favorable, but the evidence is not convincing. The clinical reports in the book reveal that the treatment is of no value in miliary tuberculosis or in tuberculosis leptomeningitis and that in advanced and serious cases of pulmonary tuberculosis the treatment is perilous and offers "only a slight chance of recovery." It remains to be determined whether any better results can be obtained with the Sanocrysin-serum treatment than without it. There does not appear to be any reason for imagining that the particular gold salt used by Mollgaard can have any different effect than the other gold salts which have been investigated in the past and abandoned. At present there is no justification for rushing into the treatment of tuberculosis with this drug. (Jour. A. M. A., Feb. 14, 1925, p. 516).

Yadil Blows Up.—Yadil was supposed to be an esoteric form of garlic. It was heavily advertised throughout the British Isles and to a small extent in the United States. Then came a bomb in the form of an exposure of Yadil, published in a London paper. It was a report of an analysis by an eminent chemist which declared Yadil to consist of 1 part formaldehyde, 4 parts glycerin, 95 parts of water and a smell. A second report was from a well known pharmacologist. There were three results from the explosion. The first and most important was that the sale of Yadil almost ceased. The second was an action for libel by the Yadil concern against the newspaper and the scientists. The third was the application by the "patent medicine" concern to prohibit further publications. The injunction was refused. Now the Yadil concern is in bankruptcy and its action for libel has been dismissed by the court. (Jour. A. M. A., Feb. 14, 1925, p. 520).

Felsol.—In the advertising of the American Felsol Co., Felsol is claimed to have the following composition: "Metozin 0.9 (containing Phenazon 0.25, Anilipyrin 0.4, Jodopyrin 0.25), caffeine 0.1, digitalis and strophanthus glycosides 0.0015 and the alkaloid of lobelia inflata 0.005." Felsol is a typical illustration of an irrational shotgun mixture. One of the claimed ingredients, metozin, is stated to contain phenazon (antipyrin), anilipyrin (a mixture of antipyrin and acetanilid), and iodopyrin (a compound of antipyrin and iodine). In addition to these multiple antipyretic ingredients, the product is claimed to contain four other active drugs. According to the circular, Felsol "gives the busy physician a handy, convenient and harmless remedy which may be given for any kind of bronchial or cardiac asthma, without the necessity on the part of the physician to embark on long theoretical considerations as to the underlying cause of the attack." A product that contains preparations of digitalis, strophanthus and lobelia is not a "harmless" remedy. The recommendation for the indiscriminate use of this product is to be strongly condemned. (Jour. A. M. A., Feb. 14, 1925, p. 536).

Viriligen, Glandular Comp. and Pineal Comp. Not Accepted for N. N. R.—Viriligen (G. W. Carnrick Co.), is marketed in tablets, capsules and ampules, each of which is stated to contain "desiccated extracts of anterior pituitary, suprarenal cortex, lymph, brain and spinal cord substance, testis and 1/10 gr. thyroid." It is claimed that the preparation is "indicated in lowered virility and sexual neurasthenia of functional origin." There is no evidence that extracts of the anterior portion of the pituitary, suprarenal cortex, lymph, brain, spinal cord and testis have any therapeutic value in sexual neurasthenia.

thenia or lowered virility (sexual capacity?). The Council on Pharmacy and Chemistry found Viriligen inadmissible to New and Nonofficial Remedies, because (1) its composition is indefinite; (2) the therapeutic claims are unwarranted, and (3) it is an unscientific mixture.

Glandular Comp. (Male) Special Formula No. 1 (G. W. Carrick Co.), comes in tablets and capsules which are stated to contain "Thyroid" 1/10 gr., "Pituitary" 1/40 gr., "Suprarenal" 1/4 gr., "Orchic" 1/4 gr., "Physiological Salts Comp." 1/4 gr.

Glandular Comp. (Female) Special Formula No. 2 (G. W. Carrick Co.), comes in tablets and capsules claimed to contain "Thyroid" 1/10 gr., "Pituitary," 1/40 gr., "Suprarenal," 1/4 gr., "Ovarian," 1/4 gr., "Physiological Salts Comp." 1/4 gr.

Pineal Comp (Male), Special Formula No. 3 (G. W. Carrick Co.), comes in tablets and capsules said to contain "Anterior Pituitary" 1/5 gr., "Thyroid" 1/8 gr., "Suprarenal" 1 gr., "Orchic 1-1/2 gr., "Pineal" 1/30 gr., "Physiological Salts Comp.," 1/4 gr.

Pineal Comp. (Female). Special Formula No. 4. (G. W. Carrick Co.), comes in tablets and capsules said to contain "Anterior Pituitary" 1/5 gr., "Thyroid" 1/8 gr., "Suprarenal" 1 gr., "Ovarian" 1-1/2 gr., "Pineal" 1/30 gr., "Physiological Salts Comp." 1/4 gr.

The Council on Pharmacy and Chemistry found these preparations inadmissible to New and Nonofficial Remedies because (1) they are unscientific mixtures, (2) their composition is indefinite and (3) the therapeutic claims are unwarranted. (Jour. A. M. A., Feb. 28, 1925, p. 695).

"Organ-O-Tones."—From the advertising, it appears that the Cole Chemical Co. is engaged in the marketing of "shotgun" mixtures, largely of the "pluriglandular" type. For a year or more it has been "pushing" a mixture "for obesity," designated "Organ-O-Tones No. 19." The preparation is marketed in capsules which have been stated to contain: "Thyroid Substance," 1/2 gr., "Pituitary (whole)" 1/4 gr., "Phytolaccin" 1/2 gr., "Apocynum (P. E.)" 1/4 gr., "Organ-O-Tones No. 12" (composed of sodium bicarbonate, potassium bicarbonate, calcium glycerophosphate, calcium phosphate (dibasic) and Magnesium Phosphate), 3-1/2 grs. It is evident that Organ-O-Tones No. 19, for Obesity, is an irrational mixture which depends for its action as an "obesity" remedy on the thyroid which it contains. The firm's advertising does not stress the formula and hence it is probable that those who use this preparation do so without full appreciation that they are administering thyroid. More than sixteen years ago, Reid Hunt and Atherton Seidell called attention to the misuse of thyroid as an ingredient of "antifat" nostrums. Since then the ill effects of thyroid as an antifat have become well established. Recently H. S. Plummer and Wm. Boothby warned against the uncontrolled use of thyroid in obesity. (Jour. A. M. A., Feb. 28, 1925, p. 698).

Eucain.—Originally, two kinds of "eucain" were on the market, namely, "alpha eucain" and "beta eucain." The use of the first product has been generally abandoned. The second product is official in the U. S. Pharmacopoeia in the form of hydrochlorid (betaeucain hydrochlorid). Betaeucain hydrochlorid is a local anesthetic like cocain, but weaker and devoid of the stimulating properties of the latter. It does not dilate the pupil, nor does it contract the blood vessels as does cocain. (Jour. A. M. A., Feb. 28, 1925, p. 698).

Butyn and Epinephrin.—As a result of animal experiments recently reported by Hirschfelder, Backer

and Jennison, "the addition of epinephrin to solutions of cocain and saligenin increases their tendency to cause local edema. This is not the case with procain and butyn." According to New and Non-official Remedies, 1924, the use of butyn for injection anesthesia or for special anesthesia does not appear promising, since its toxicity is materially greater than that of cocain. Butyn is a substitute for cocain in surface anesthesia, as for the eye, nose and throat; it acts through intact mucosa almost as effectively as cocain; solutions of butyn are non-irritant. (Jour. A. M. A., Feb. 28, 1925, p. 699).

The Dick Test.—The U. S. Treasury Department has not authorized the interstate sale of any Dick scarlet fever preparation. The Council on Pharmacy and Chemistry does not accept biologic products until they are licensed by the Treasury Department, and therefore has not considered the Dick scarlet fever preparation. (Jour. A. M. A., Feb. 28, 1925, p. 699).

Book Announcements

Operative Surgery. By J. SHELTON HORSLEY, M. D., F. A. C. S., Attending Surgeon, St. Elizabeth's Hospital, Illustrated by MISS HELEN LORRAINE, Second Edition. St. Louis. The C. V. Mosby Company. 1924. 8vo. 784 pages with 666 original illustrations. Cloth. Price, \$12.50.

The reception accorded the first edition of Horsley's Operative Surgery was so gratifying that the author felt the necessity of publishing a second edition to include the latest and most up-to-date methods employed in operative surgery. Surgery is keeping apace with the times in making changes and improvements, and Dr. Horsley describes a number of new operations in the present volume. The technic employed in many cases is so excellently portrayed by original drawings, that one may almost imagine he is seeing the operations in the clinic.

To one acquainted with Dr. Horsley's ability as a surgeon and author, it is only necessary for us to announce the publication of this second and enlarged edition.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1924. Cloth. Price, postpaid, \$1.00. P. 82. Chicago: American Medical Association, 1925.

This volume contains the reports of the Council on Pharmacy and Chemistry that have been adopted and authorized for publication during 1924. Some of these reports have appeared in *The Journal of the American Medical Association*. Others are now published for the first time.

The annual volumes of the "Council Reports" may be looked on as the companion volumes to New and Nonofficial Remedies.

While the latter contains the medicinal preparations that are found acceptable, the reports contain the reasons why certain products were not accepted.

The volume also contains reports on products which were included in former editions of New and Nonofficial Remedies but which will not appear in the 1925 edition because they were found ineligible for further recognition.

The volume contains a number of reports of a general nature: for instance, a report on the therapeutic value of benzyl benzoate; a report on anaphylaxis produced by thromboplastic substances and a report on the therapeutic use of digitalis.

Physicians who keep fully informed in regard to the value of proprietary remedies will wish to own this book.

An African Holiday. By RICHARD L. SUTTON, M. D., LL.D., Fellow of the Royal Geographical Society of Great Britain. St. Louis. The C. V. Mosby Company. 1924. 8vo. 180 pages with 102 original illustrations. Cloth. Price, \$2.25.

Infection, Immunity and Inflammation. A Study of the Phenomena of Hypersensitiveness and Tolerance, and Their Relationship to the Clinical Study, Prophylaxis, and Treatment of Disease. By FRASER B. GURD, M. D., C. M., F. A. C. S., Montreal. Lecturer in Applied Immunology and in Surgery, McGill University; Associate Surgeon, Montreal General Hospital, etc. St. Louis. The C. V. Mosby Company. 1924. 8vo. 329 pages. Cloth. Price, \$5.00.

Surgical Pathology. By WILLIAM BOYD, M. D., M. R. C. P. Ed., F. R. S. C., Professor of Pathology, University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. 8vo. of 837 pages with 349 illustrations and 13 colored plates. Philadelphia and London. W. B. Saunders Company. 1925. Cloth, \$10.00 net.

The Crippled Hand and Arm. A Monograph on the Various Types of Deformities of the Hand and Arm as a Result from Abnormal Development, Injuries and Disease, for the Use of the Practitioner and Surgeon. By CARL BECK, M. D. Philadelphia and London. J. B. Lippincott Company. 1925. 8vo. 243 pages with 302 illustrations. Cloth. Price, \$7.00.

The Diagnosis of Children's Diseases. With Special Attention to the Diseases of Infancy. By PROFESSOR DR. E. FEER, Director of the University Children's Clinic, Zurich, Switzerland. Translated by CARL AHRENDT SCHERER, M. D., F. A. C. P. Philadelphia, London, Montreal. J. B. Lippincott Company. 1925. 8vo. 551 pages, profusely illustrated. Cloth. Price, \$7.00.

Fractures and Dislocations. Immediate Management, After-Cure, and Convalescent Treatment with Special Reference to the Conservation and Restoration of Function. By PHILIP D. WILSON, M. D., F. A. C. S., Instructor in Orthopedic Surgery, Harvard Medical School, and WILLIAM A. COCHRANE, M. B., Ch. B., F. R. C. S., Edin, University Tutor in Clinical Surgery, University of Edinburgh. Philadelphia and London. J. B. Lippincott Com-

pany. 1925. 8vo. 789 pages with 978 illustrations. Cloth. Price, \$10.00.

A Text-Book of Physiology for Medical Students and Physicians. By WILLIAM H. HOWELL, Ph. D., M. D., Professor of Physiology in the School of Hygiene and Public Health, Johns Hopkins University, Baltimore. Ninth Edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 1069 pages, 308 illustrations. Cloth. Price, \$6.50 net.

A Compend of Genito-Urinary Diseases and Syphilis, including their Surgery and Treatment. By CHARLES S. HIRSCH, M. D., Urologist to the Jewish Hospital, Mt. Sinai Hospital, etc., Philadelphia. Fourth Edition, revised. Philadelphia. P. Blakiston's Son and Company. 1012 Walnut Street. 1925. 12mo. XVI—337 pages, with 44 illustrations. Cloth. Price, \$2.00.

Proceedings of the International Conference on Health Problems in Tropical America. Held at Kingston, Jamaica, B. W. I., July 22 to August 1, 1924, by invitation of the Medical Department of the United Fruit Company. Published by United Fruit Company, Boston, Massachusetts. 1924. Cloth. 8vo. XXI—1010 pages.

The Technic of Local Anesthesia. By ARTHUR E. HERTZLER, M. D., F. A. C. S., Professor of Surgery in the University of Kansas; Surgeon to St. Luke's Hospital and St. Mary's Hospital, Kansas City, Mo., etc. Third Edition. St. Louis. The C. V. Mosby Company. 1925. 8vo. 272 pages with 140 illustrations. Cloth. Price, \$5.50.

The Physiology of Mind. An Interpretation Based on Biological, Morphological, Physical and Chemical Considerations. By FRANCIS X. DERCUM, M. D., Ph.D., Professor of Nervous and Mental Diseases in Jefferson Medical College, Philadelphia. Second Edition, Reset. Philadelphia and London. W. B. Saunders Company. 1925. 12mo. of 287 pages. Cloth, \$3.50 net.

Principles of Surgery for Nurses. By M. S. WOOLF, M. A., B. Sc., M. R. C. S. (Eng.), L. R. C. P. (London), Instructor in Surgery, University of California Hospital, San Francisco. Philadelphia and London. W. B. Saunders Company. 1925. 12mo. of 350 pages, illustrated. Cloth, \$3.00 net.

Serum Diagnosis of Syphilis by Precipitation. Governing Principles, Procedure and Clinical Application of the Kahn Precipitation Test. By R. L. KAHN, M. S., D. Sc., Immunologist, Bureau of Laboratories, Michigan Department of Health. Baltimore. Williams and Wilkins Company. 1925. Octavo. 237 pages. Cloth. Price, \$3.00.

Pediatrics. By Various Authors. Edited by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totaling 8,000 pages with 1,500 illustrations, and separate Index Volume free. Now ready—VOLUME VI, containing 736 pages with 127 illustrations. Philadelphia and London. W. B. Saunders Company. 1925. Cloth, \$10.00 per volume. Sold by subscription.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles in Medicine, Surgery and the Various Specialties. By Leading Members of the Medical Profession throughout the World. Edited by HENRY W. CATTELL, M. D., Philadelphia, and COLLABORATORS. VOLUME I. Thirty-fifth Series, 1925. Philadelphia and London. J. B. Lippincott Company. 1925. Octavo of 301 pages. Cloth.

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Editorial

Politics and Medicine.

Politics and medicine have been commonly assumed to be two things that, like oil and water, would not or should not mix. In general this is true, but with higher ideals for the medical profession and for the health of the people, a satisfactory and effective emulsion may be made. Naturally, the chief obligation is upon the individual doctor to hold up the best traditions of medicine in deed and in truth, and to practice the spirit of medical ethics rather than take refuge behind technicalities. In these modern days of apparently lowered morals it behooves each member of the medical profession to become a leader in his community, not only for hygienic measures, but for moral standards. A good citizen is a respecter of all laws. Unless a doctor leads the clean life he preaches, he resembles the rather contemptible politician who brazenly announces that he is politically dry but personally wet.

The contemptuous opinion concerning followers of Esculapius, held by many politicians and by some big business leaders, is naturally galling. If the follower is not a true Esculapian, but is one who desires "to seem" rather than "to be," who practices cults and who has no real human touch nor scientific curiosity, he is not of the type that the regular medical profession would like to consider representative.

A distressing spectacle, enacted before every election, is that of candidates for governorship and other elective offices solicit-

ing votes and attempting to secure favor from the different classes of voters by every available means. Because doctors seem timid in asserting the views they know to be, right their political influence has heretofore been regarded as practically negligible; but the medical men of the State of Virginia can, if they will, control any political office within the gift of the State. Such power, if exerted properly, would be the greatest asset to Virginia. The candidates begin months before the election to send out letters or propaganda. When the doctors are favored with such letters much emphasis is laid on the relatives or parents who have been doctors and upon what great respect the candidate has for the medical profession, though the letter may be singularly neglectful of his record in matters of public health and the maintenance of scientific standards for applicants to practice medicine.

Can any member of the regular medical profession (which of course does not mean "allopaths," because there is "no such animal," this term having been wished on regular doctors by the founder of homeopathy) approve of any measure that endorses a pseudo-scientific method, bounded by a creed? Is there anything more absurd to a man who has real knowledge of anatomy and physiology than the tenets of the osteopath, the chiropractor, or the Christian "scientist"?

It does not seem to be generally known that the Veterinary Board of Virginia is much more careful in protecting horses, cattle and hogs from unscientific medical treatment than is the Legislature in protecting the health of the people of Virginia. The Veterinary Board requires that any one who undertakes to practice veterinary medicine or surgery in Virginia shall have a minimum requirement of two years in college and a thorough education in the fundamental sciences of anatomy, physiology, chemistry, embryology, pharmacology and pathology. There is no exception to this rule by which practitioners of cults, such as chiropractors, osteopaths or Christian "scientists," may treat horses, cattle or sheep—but they are permitted by the Legislature to practice on human beings!

Let each doctor inform himself about the record and the present platform of every candidate for whom he expects to vote. It is of no concern whether the gentleman or the lady in question has near relatives who are doctors

or whether members of their family have been saved by the administrations of a regular medical doctor. It is also of no importance whether a candidate has voted for appropriations for the State Board of Health or for the Crippled Children's Hospital, which appeal to the sentiment of the public and are, of course, commendable. The vital thing is whether the candidate is willing, because of a lobby maintained by the chiropractors, osteopaths, Christian "scientists" and others, to support a bill that will impair the power of the State Medical Examining Board and so enable the governmental authorities to place in charge of the little patients in the Crippled Children's Hospital the followers of the above-mentioned cults, who do not have the scientific education to permit them legally to practice on dogs.

Let each doctor ask the candidate for legislature or for governor whether he supported the miserable bill passed in the Legislature about five years ago, which enabled De Collard not only utterly to defy the requirements of the State Medical Examining Board as to his fundamental qualifications, but permitted him to found a school from which others of his kind would be brought forth. Ask the candidate if we would have a man of this kind treat a blooded bull of his, and then follow up the question with the query whether he thinks permitting such men to have a license to practice medicine without an official inquiry into their scientific qualifications does not work a far greater injury to the health and well-being of the people of the State of Virginia than his vote for appropriations for the Crippled Children's Hospital and for the Board of Health can possibly benefit.

Let us bring these matters out squarely and see where the people stand. It is a great opportunity for the members of the medical profession, as well as their privilege, to educate the people of Virginia along lines of sanitation and health. Many doctors would doubtless be much more prosperous and have more patients if there were no restrictions whatever on medical practice, because no regulation of medical practice means many cases of unnecessary sickness and injury. But that is not the point. We are not standing for the protection of the medical profession primarily, but for the protection of the health of the people of Virginia, which can only be done by upholding

high standards of scientific medical education. A politician of sufficient education to appreciate the value of modern science cannot in good faith vote for the exploitation of the men and women in Virginia by the followers of cults. Let each doctor be in himself a public health educational bureau, and, discarding to some extent the ancient reserve, talk frankly to his patients about their troubles, describe briefly the anatomy, physiology and pathology concerned in the patient's complaints, and so give a basis of facts which will make impossible the sprouting of the seeds of error that the cults are busy in disseminating. Can any one with the correct conception of anatomy of the spine, for instance, regard as other than absurd the claims of the chiropractor, or can an intelligent layman with even a smattering of knowledge of anatomy of the nerves of sensation perceive the slightest foundation for the doctrine of Christian "science"? Can any one with a knowledge of physics and chemistry seriously consider the theories of Abrams and his followers? When the legislature and those in authority are willing to exempt men like De Collard from the requirements of the State Medical Board, they may go farther and, if they believe his merits are sufficient to demand special legislation for exemption, insist upon such men being placed in charge of the Crippled Children's Hospital or of other institutions where little children are treated for congenital and acquired deformities.

The fate of the health of the people of Virginia lies in the hands of the members of the regular medical profession. Every physician should explain to his patients matters concerning anatomy, physiology, pathology and therapeutics; and he should make a personal inquiry of the candidates soliciting his vote as to their past record and present views and attitude toward regular medicine.

The recent experience in Connecticut cannot be too strongly emphasized. The Legislature, against the earnest protest of the regular medical profession, created many different Boards by which numerous cults and many grades of medical practitioners were admitted to practice medicine. It was soon found, even by laymen, that the mortality for insignificant diseases and injuries was great. Then the people took the matter in their own hands and instituted a grand jury investigation, but not until there had been numerous deaths

which seemed unnecessary. The *New York Times* commented upon this as follows:

"Connecticut's highly commendable campaign against quack doctors, and its reverberations in other states, almost warrant the hope that success might attend an immediate and earnest attempt to change the medical practice laws all through the country. And no laws need changing more. Thanks to the abysmal ignorance in medical matters which characterizes a majority in our legislative bodies, statute books show how well the quacks have been able to win confidence in the two delusions on the acceptance of which their legal right to do business must rest. The first of these is that nothing is 'medical practice' except the administration of drugs, and the second is that there are and must be 'schools' of medicine, each equally efficient and each entitled to bestow upon its representatives the title of doctor. * * *

"In no State should there be more than one medical examining board, and that one alone should issue licenses to practice medicine. Its members would not belong to any 'school.' They would be men of real medical education themselves, able to distinguish between a real medical college and a diploma mill—between a real doctor and a quack. * * *

"Not one of the men licensed by such a board would claim universal efficacy for any form of treatment. Whoever does that is instantly revealed as a quack, either ignorant or dishonest, and he is not any the less a quack because he can produce 'testimonials' from grateful patients, including the familiar legislator whose close relative was saved from the fast-approaching death by an 'irregular' after he, or more often she, had been given up by anywhere from one to a dozen 'regular' doctors."

"The number of people, otherwise intelligent, who thus can be deceived and with the best of intentions can deceive others as gullible as themselves is disgracefully and humiliatingly large."

J. SHELTON HORSLEY, M. D.

Virginia Doctors and the Legislature.

The election of the members of the coming legislature will soon be held. Candidates throughout the State will soon present their claims for the votes of the people. The extreme importance of one phase of Virginia's needs is presented in an editorial, "Politics and Medicine," in this issue. What the writer has

forcefully written is applicable to other and related questions of medicine and public welfare. One need hardly stress this point before Virginia doctors. The practical thing to do now is for Virginia doctors to "go into politics," at least for the next few months. This is urged upon physicians everywhere throughout the State.

Going into politics is not urged for the purpose of office seeking as such, but for the purpose of effecting the election of the highest type of legislators possible to represent Virginia in its law making body. No group of workers in the State knows more truly the needs of Virginia in matters touching upon the welfare of its people than do Virginia doctors. This is argument enough to convince one of the justification of the physician's turning aside for a time from his daily routine in order to take an active part in practical politics. Such action by Virginia doctors will redound to advancement of our State along lines much needed at this time.

A. G. B.

Considering Burns.

One of the most distressing of human afflictions is a severe burn. Pain, toxemia, expense, tedious illness or danger to life all play an important role in the consideration of large burns of the second and third degree. Many and varied have been the treatments given burns in the acute stages and include the application of ointments, solutions and exposure to air with subsequent skin grafts in selected cases.

Debridement, which consists of cutting away burned tissue down to healthy tissue, is advocated by A. M. Willis in the *Journal of the American Medical Association*, February 28, 1925, who reports most satisfactory results. This treatment is based upon animal experimentation reported in 1923 by Robertson and Boyd which tends to prove that Cannon and his co-workers were correct in believing that secondary traumatic shock is due to intoxication from absorption from protein cleavage products.

This method should be thoroughly tried out, for, if the results substantiate those of Willis, much suffering, expense and danger will be saved those who sustain severe burns.

B. R. T.

Southern Dietetics.

Recently is was asked, "Who is the authority on dietetics in the South?" and this question was found hard to answer. Many Southern men have made dietetic contributions in some one particular direction, but we know of no book or treatise on dietetics written by a Southern physician in recent years. Here is an important field for authoratative investigation and publication.

The recent advances in deficiency diseases and diabetes have brought the question of diet prominently to the front. Calorie feeding has become a matter of every day practice in these and certain other conditions and Dr. Ed. Wood, of Wilmington, has contributed much toward the understanding of the diet in sprue and allied conditions. In spite of all these advances there seems to be much misunderstanding and dubiousness as to the question of diet even in such well known conditions as gastric and duodenal ulcers. Looking over dietary lists initiated by Northern authorities, there are two criticisms. One is that many of the articles of food are expensive and beyond the reach of the poor people of the South; the other is that many of the articles are not obtainable in this section and foods which are commonly used in the South are not mentioned. For instance, one sees on the dietetic lists Brussels sprouts, artichokes, cress and many other articles not obtained in our markets, while no mention is made of foods usually used in this region, for instance, black eyed peas, roe herring and white meal corn bread.

The question of hot breads often arises and much has been said against them but not much scientific investigation has been done. The time is opportune for a broad and at the same time scientific discussion of the whole dietetic subject and to settle the question whether calorie diets and restricted diets are, or are not, too rigid and it is hoped that some Southern physician will answer these with an authoritative publication. The only suggestion we have to make is that he may bear in mind Shakespeare's injunction:

"Let good digestion wait on appetite,
Good health on both."

B. R. T.

News Notes

Our New Volume.

The VIRGINIA MEDICAL MONTHLY, with this issue, enters upon its fifty-second year of continuous publication. It is one of the oldest medical journals in this country and has always tried to maintain a high standard. With the co-operation of the members of our State Medical Society, by whom it is owned, we shall endeavor to keep it on a high plane and are ever desirous of using its pages in the furtherance of any matters pertaining to ethical medicine.

Let's make this fifty-second year of the journal the best yet!

Arrangements Being Made for Richmond Meeting, Medical Society of Virginia.

The Richmond Academy of Medicine recently met and appointed the following doctors as the executive committee in charge of arrangements for the Richmond meeting of the Medical Society of Virginia, October 13-16, 1925: Dr. Thomas D. Jones, chairman, and Drs. Garnett Nelson, E. H. Terrell, C. M. Miller, F. S. Johns, J. K. Hall, F. H. Hodges, Thos. W. Murrell, and Carrington Williams.

The following sub-committees and chairmen for same have been named:

RECEPTION AND AUTOMOBILES—Dr. Fred M. Hodges.

BADGES, PRINTING AND PUBLICITY — Dr. Thos. W. Murrell.

GOLF—Dr. E. H. Terrell.

FINANCE—Dr. Carrington Williams.

ENTERTAINMENT—Dr. Garnett Nelson.

SCIENTIFIC EXHIBITS—Dr. J. Shelton Horsley.

COMMERCIAL EXHIBITS, HOTELS AND MEETING HALLS—Dr. James K. Hall.

LADIES—To be appointed.

Members of the sub-committees will be announced later. Richmond doctors are anxious to have this a "big" meeting and want every member to attend. There will be no trouble in securing all accommodations necessary, and there is always plenty to be done in Richmond.

American Medical Association Meeting.

Official call has been issued for the seventy-sixth annual meeting of the American Medical Association to be held in Atlantic City, New Jersey, from Monday, May 25th to Friday, May 29th, 1925. The House of Delegates

will convene on the first day and the scientific assembly will open with the general meeting at 8:30 P. M. on the evening of the 26th. The various sections of the scientific assembly will meet Wednesday, the 27th, at 9 A. M. and 2 P. M. and subsequently according to their respective programs. Dr. William Allen Pusey, Chicago, is president, and Dr. Olin West, Chicago, secretary. Reduced railroad fares have been secured for the benefit of members and fellows of the Association and members of their families. In addition to the usual attractions offered by Atlantic City and attendance upon these meetings, the American Medical Golfing Association will hold its eleventh annual tournament at Seaview Golf Club on May 25th.

Dr. Clarence L. Andrews, 1801 Pacific Avenue, Atlantic City, N. J., is chairman of the local committee of arrangements for this meeting.

Virginia Society of Oto-Laryngology and Ophthalmology.

The 1925 meeting of this society will be held at Winchester on Thursday, May 7th, under the presidency of Dr. James Morrison, of Lynchburg.

The invited guests are Dr. William Zentmayer, Philadelphia, Dr. James Babbitt, Philadelphia, and Dr. Harry Gradle, Chicago, all of whom will read papers before the society. The subject for the symposium is "Cataract" which will be led by Dr. Joseph A. White, Richmond and Dr. H. S. Hedges, Charlottesville. In addition, there will be a number of papers and case reports presented by members.

A luncheon will be tendered the members by Dr. Hunter McGuire at his residence, after which they will be taken on a drive through the Valley of Virginia. This presents a rare opportunity as the meeting will be during the famed Apple Blossom Festival.

The present membership consists of about seventy-five eye, ear, nose and throat specialists of Virginia. Membership is open to any specialist in good standing residing in the state. Communications should be addressed to Dr. E. U. Wallerstein, secretary, 114 N. Fifth St., Richmond, Va.

Dr. Russell Cecil Heads New York Alumni.

A permanent organization of all Medical College of Virginia and University College of Medicine alumni living in New York has been

founded. Dr. Russell Cecil of the class of 1906 was elected president of the organization. Dr. Cecil is a native of Richmond, Va., and one of the many graduates of the Medical College of Virginia who has become distinguished in the field of medicine.

The American College of Surgeons, Va., W. Va., Md. and D. C. Section,

Held its annual meeting in Charleston, W. Va., March 20 and 21. Many interesting clinics were held and also hospital and health conferences. Dr. Allan Craig, of the American College of Surgeons, presided over the health conference at which lantern slides were shown. Dr. Craig, who was taken sick at this meeting, was able to leave the next day for his home. Invited guests were Drs. J. Garland Sherrill, of the University of Louisville, and Dr. George W. Crile, of Cleveland, who read most interesting papers. It was decided to hold the 1926 meeting in Winchester, Va., and Dr. W. H. Goodwin, University, was elected chairman and Dr. Paul W. Howle, Richmond, secretary of the Virginia Section.

Among the Virginia doctors noted at this meeting were Drs. P. W. Boyd and Hunter H. McGuire, Winchester; Southgate Leigh, Norfolk; Murat Willis, C. C. Coleman, W. L. Peple and Paul W. Howle, Richmond; W. H. Goodwin, University, and J. Coleman Motley, Abingdon.

The Virginia Surgeons Travel Club

Met in Chicago, following the sectional meeting of the American College of Surgeons, and went from there to Rochester, Minn., where they were guests of the Mayo Clinic for several days. On their return, they visited clinics in Chicago and Cleveland. This Club has eighteen members. Those on the trip this year were Drs. Jos. T. Buxton, Newport News; H. D. Howe, Hampton; E. C. S. Taliaferro and J. L. Rawls, Norfolk; P. W. Howle, W. L. Peple and W. T. Graham, Richmond; R. P. Bell, Staunton, J. C. Motley, Abingdon; and invited guests, Drs. Israel Brown and H. G. Ashburn, Norfolk, and Otis T. Amory, Newport News.

New President of Medical College of Virginia.

The Board of Visitors of the Medical College of Virginia, at its meeting on March 24, unanimously elected Dr. William T. Sanger, secretary of the State Board of Education, president of the College. He succeeds Dr.

Stuart McGuire who has for sometime advocated securing a full-time president for the institution. Dr. Sanger is a native of Rockingham County, Virginia, and has devoted much of his life to teaching. He will enter upon his duties the first of July, this year. Dr. McGuire will continue as a member of the board of visitors and of the executive committee of the College.

At this same meeting, Mr. Eppa Hunton, Jr., was elected president of the Board of Visitors, succeeding the late Judge George L. Christian.

Medical Student Heads Graduating Class, U. Va.

Staige Davis Blackford, of the Department of Medicine, has been elected president of the graduating class of 1925 of the University of Virginia. He is a son of the late L. M. Blackford, for many years headmaster of the Episcopal High School, and has taken an active part in athletics since he entered the University, several years ago.

Dr. Ramon D. Garcin,

Richmond, who has been quite sick at a local hospital, is reported as improved, as we go to press.

The American Society of Clinical Pathologists

Will hold its annual meeting in Philadelphia, May 21, 22 and 23, the week preceding the meeting of the American Medical Association in Atlantic City, so that those coming from a distance may plan to attend both meetings before returning home. Dr. John A. L. Kolmer, Philadelphia, is president, and Dr. Ward Burdick, Denver, Col., secretary-treasurer.

Dr. and Mrs. E. G. Brumback

And son, of Luray, Va., have been recent visitors in Washington, D. C.

Additions to Virginia Baptist Hospital.

Contract has been let for the erection of a nurses' home in connection with the Virginia Baptist Hospital, Lynchburg, Va., the building to cost \$36,000. It is to be the gift of O. B. Barker, of that city. Arrangements are also being made to finance the erection of the second unit of the hospital plant.

Child Health Day.

May 1st, this year, will witness throughout the entire country a continuous series of local celebrations, pageants, plays, games or con-

tests, all having as their motive the focussing of attention on the needs of children.

Dr. Mary E. Brydon, Director of Child Welfare, of the Virginia Board of Health, is the State Director of this year's effort. She has formulated plans suitable for any community in Virginia. The larger cities and the more populous rural districts are able to undertake a program which would be impossible for small towns or sparsely settled sections; but Dr. Brydon has made a digest of the numerous proposals for celebration, and she is able to advise any community so that the best advantage can be taken of local opportunities. She will welcome questions from mothers' clubs, women's associations and, in fact, any style of organization that is concerned in helping to preserve and improve the nation's greatest asset—the children.

Miniature Playground.

A miniature model of a five-acre playground for city children has been constructed for the Children's Bureau and will be displayed as part of the bureau's exhibit at the International Council of Women meeting in Washington this spring. The model, planned by the Recreation Expert of the Children's Bureau, is an exact reproduction to scale of a playground adequately equipped for daily use by approximately 300 boys and girls. It contains a miniature swimming pool, a shelter house, two tennis courts, a basketball court, a large baseball diamond, a smaller diamond, a wading pool for little children, seats for the story hour, swings, ladders, flying rings, sand boxes, and all other needed equipment. Tiny figures of children engaged in the various sports are part of the model.

Congress of American Physicians and Surgeons.

This Congress, composed of the members of a number of National societies, meets in Washington, D. C., May 5 and 6, with headquarters at the Washington Hotel. All physicians are invited to attend the meetings of the Congress and the public meetings of the various societies, but only those may register who are members, specially invited guests, or visitors accredited through secretaries of the constituent societies. Dr. A. R. Shands, 901 Sixteenth Street, Northwest, Washington, D. C., is chairman of the local committee of arrangements. He or some member of his committee will take pleasure in answering any in-

quiry relating to the local arrangements of the Congress.

Dr. William J. Mayo, Rochester, Minn., is president of the Congress, and Walter R. Steiner, Hartford, Conn., secretary.

Dr. Charles Y. Bidgood,

Who came to Richmond about a year ago, with a view to making this his future home, has just moved to Hartford, Conn., in response to a very flattering offer received by him.

Dr. and Mrs. Stuart McGuire,

Richmond, are home again, after a visit to Magnolia Gardens, near Charleston, S. C.

Lt. Toson O. Summers, M. C.,

Formerly of Richmond, but now chief medical officer on the U. S. S. "Richmond," narrowly escaped death recently, in an accident which cost the lives of two officers in Guantanamo Bay, Cuba. Fourteen officers were returning to the "Richmond" in a motor launch, when it capsized in a heavy sea and all of its occupants were thrown overboard. Lt. Summers was among those rescued later by a passing boat.

Last Announcement for Registration on the Inter-State Post-Graduate Assembly Clinic Tour of American Physicians to Canada, British Isles and France.

The medical profession of America who are in good standing in their State Medical Societies and members of their families are cordially invited to participate in the Inter-State Post-Graduate Assembly clinic tour to Canada, British Isles and France, leaving Chicago May 17 and sailing from Montreal May 23. There is no restriction to territory. Dr. Charles H. Mayo of Rochester, Minnesota will be the presiding officer of the tour and Dr. William B. Peck, of Freeport, Illinois, Managing-Director.

The tour is being conducted as the result of an invitation extended to the American physicians through this Association by the leading universities and medical institutions of Canada, British Isles and France. Clinics will be held for the visitors in the various cities visited, and these will cover every branch and specialty of medical science. The price of the tour, including traveling expenses is under \$1,000. In addition to the clinics, numerous social functions will be tendered the doctors and their families.

Two fine new one-cabin ships with excellent

appointments have been chartered to take the physicians abroad. Reservations can be made by sending the reservation fee of \$65.00 per person to Dr. William B. Peck, Managing-Director, Freeport, Illinois. There are plenty of first-class accommodations available.

The registration March 17th was 375 physicians and total number, including members of the physicians' families 625. Forty-one states are represented, and quite a number of provinces of Canada.

Lee County Medical Society,

Dr. C. C. Pearce, Pennington Gap, Va., has been elected president, and Dr. J. B. Muncy, Jonesville, has been re-elected secretary of the Lee County Medical Society. This society reports that it is active in spite of the fact that it has only ten members and that they are widely separated.

The American Urological Association

Will hold its annual meeting in St. Louis, May 21-23, with headquarters at Hotel Chase. Information about this meeting may be obtained from the secretary, Dr. Homer G. Hamer, Indianapolis, Ind.

The American Board of Otolaryngology

Will hold its first examination during the meeting of the American Medical Association in Atlantic City, May 25th to 28th.

According to the rules of the Board, applicants are divided into three classes.

Class I. Those who have practiced Otolaryngology ten years or more.

Class II. Those who have practiced Otolaryngology five years and less than ten years.

Class III. Those who have practiced Otolaryngology less than five years.

The type of examination is different for each class.

The Secretary, Dr. Hanau W. Loeb, 1402 South Grand Boulevard, St. Louis, Mo., announces that thus far over three hundred applications have been made.

The National Association for the Study of Epilepsy,

Of which Dr. G. Kirby Collier, Rochester, N. Y., is president, and Dr. Arthur L. Shaw, Camden, N. Y., secretary, will hold its annual meeting in Richmond, Va., May 11 and 12, immediately preceding the sessions of the American Psychiatric Association. At the former meeting, papers on the subject of epilepsy will be presented by Drs. Mennin-

gers, L. Pierce Clark, Damon, Gibbs, Tucker, Patterson and others.

The American Psychiatric Association

Will hold its eighty-first annual meeting in Richmond, Va., May 12-15, immediately following the meeting of the National Association for the Study of Epilepsy. Jefferson Hotel will be headquarters for this meeting, and Dr. James K. Hall, Westbrook Sanatorium, Richmond, is chairman of the local committee of arrangements. Dr. William A. White, Washington, D. C., is president, and Dr. Earl D. Bond, Philadelphia, secretary of this Association.

Dr. Howard L. Mitchell,

After a sixteen months' service at the Episcopal Eye and Ear Hospital, Washington, D. C., and additional work at the New York Eye and Ear Infirmary, has located at 154 West Main Street, Danville, Va., where he is associated with Dr. J. W. Tipton. Their practice is limited to diseases of the eye, ear, nose and throat.

Prior to taking up this special work, Dr. Mitchell was engaged in general practice at Callands, Va.

Dr. J. Allison Hodges Improved.

The many friends of Dr. J. Allison Hodges, throughout this State and North Carolina, will be pleased to learn that he is apparently regaining his health after several months' illness. Dr. Hodges was taken ill about last Thanksgiving Day and was taken to Stuart Circle Hospital, this city, where he was attended by Dr. A. G. Brown, Jr. For a time the daily press recorded the extreme gravity of his condition. Dr. Hodges will soon take up his duties in practice.

Dr. H. T. Hopewell,

Strasburg, Va., was a visitor in Washington, D. C., last month.

Dr. and Mrs. J. N. Barrey,

Who were recently called to Woodstock, Va., on account of the illness and death of Mrs. Barney's mother, returned to their home in Fredericksburg, Va., early in March.

Married

Dr. Thomas Preston White, Charlotte, N. C., and Miss Henrietta Tucker, daughter of Mr. and Mrs. Henry St. Geo. Tucker, of Lexington, Va., at Winter Park, Fla., March 21. Dr. White is a son of Dr. Reid White, of Lexington, Va.

Dr. J. W. Williams, Irwin, Va., formerly of Richmond, and Mrs. Mary Stamper Rayner, Fredericksburg, Va., March 31.

Dr. Arthur H. Deekens,

Richmond, Va., announces removal of his offices to Room 709, Mutual Building, this city.

The Southside Virginia Medical Association

Held its regular quarterly meeting in Norfolk, March the 10th, Dr. H. M. Snead, of South Hill, presiding. There was a good attendance, a splendid program was enjoyed by those attending, and the papers were freely discussed. Dr. R. L. Raiford, Sedley, is the efficient secretary of this Association. A pleasant feature of the meeting was an oyster roast given by the Norfolk doctors at Truitt's Farm. In the evening, the wives of the Norfolk members entertained the visitors with a delightful supper. The next meeting is to be held in Suffolk on the second Tuesday in June.

Dr. Henry H. Wescott,

Of the class of '18, Medical College of Virginia, after a post-graduate course at Massachusetts General Hospital, located, last Fall, in Roanoke, Va., where he is engaged in orthopedic work.

Dr. Alexander G. Brown, Jr.,

Associate professor of medicine, at the Medical College of Virginia, Richmond, by invitation, delivered a lecture before the Richmond Dental Society, on March 19th, his subject being "Some Solved and Mooted Problems of Internal Medicine." The meeting was well attended and considerable interest was shown in the subject discussed.

Dr. W. Nelson Mercer,

Formerly connected with the Bureau of Health of Richmond, is now with the U. S. Veterans' Bureau at Saranac Lake, N. Y., where he is one of a staff of six tuberculosis specialists to look after the four hundred and fifty tuberculous ex-service patients hospitalized in cottages there. Prior to March 1, 1925, these patients were attended by the doctors of Saranac Lake on a contract basis. The Bureau works in close co-operation with Trudeau Sanatorium for the X-ray part of the work.

Before entering upon his present duties, Dr. Mercer spent several months in Detroit, Mich., where he was supervisor of the Medical Service of the Detroit Tuberculosis Society.

Dr. H. D. Ribble,

Of Blacksburg, Va., who has been spending some time at Mt. Hope, West Virginia, plans to return home about the first of May.

Dr. Robert Spilman,

Physician to the Virginia Military Institute, Lexington, expects to join a party on a European trip this summer.

Dr. and Mrs. D. M. Faulkner,

Richmond, are home again after a visit to relatives in Boynton, Va.

Superintendent of Epileptic Colony.

Dr. John H. Bell, for several years first assistant to the late Dr. A. S. Priddy, was elected superintendent of the Virginia State Epileptic Colony by the General Hospital, Board, at its meeting in Richmond, March 26. Dr. Bell graduated from Medical College of Virginia in 1910 and practiced at Bridgewater, Va., for several years before joining the staff of the Epileptic Colony.

Heart Disease has Supplanted Tuberculosis as the Greatest Man-Killer

Is an assertion made by Dr. Robert H. Halsey, of New York, in a paper presented to the American Association for the Advancement of Science at its last annual meeting in Washington, D. C. The statement is further substantiated by Dr. Stewart R. Roberts in a paper recently read before the Southern Medical Association in New Orleans, and by figures just given out for the year 1923 by the United States Department of Commerce. Dr. Roberts not only places heart disease as the most deadly destroyer of human life, but he also points to syphilis as one of the greatest causes of heart disease. It was also stated that syphilis is responsible for fifty-two per cent of all heart troubles.

Dr. Roberts said that there was no more excuse for having syphilis than leprosy; and that while a great portion of all heart diseases come from syphilis, the other portion comes from degeneration and afflictions of the rheumatic group, most of which, like syphilis, are entirely preventable. Syphilis has its most dangerous effects on the heart between the ages of forty-five and fifty-five, although it takes its toll at nearly all ages, said Dr. Roberts.

Both Dr. Halsey and Dr. Roberts advocated a wider dissemination of knowledge to dispel the ignorance from which nearly all diseases that lead to heart trouble are born.

Four Recovered Lepers Discharged from National Leprosarium.

Four lepers who went to U. S. Marine Hospital No. 66 Carville, Louisiana, the National Home for Lepers, a few years ago, have been discharged, according to a statement just made by Surgeon-General Hugh S. Cumming of the U. S. Public Health Service. The conditions under which lepers are released from this institution are exceedingly rigid. They require special observation for a period of one year, including monthly bacteriological examinations to show that the leprosy bacillus is absent from the tissues. Certification of cure is also required from a board of three medical officers stationed at the hospital and experienced in leprosy.

The treatment at Carville includes the use of chaulmoogra oil, special preparations of mercury used intravenously, X-ray therapy, surgery of superficial areas of involvement, hydro-therapy, and the violet ray. The results of treatment have been sufficiently encouraging at this institution to induce numerous other patients, of whom there are believed to be several hundred in the United States, to agree to their transfer. A special car fitted up for the purpose, and carrying a doctor and a nurse was used in the transfer last week of eleven patients from Florida, and seven were brought from California. There are at present 236 leper patients at Carville.

Dr. A. W. Graves,

Who has been practicing for sometime at Lacey Spring, Va., has moved to Harrisonburg, Va., with offices in the First National Bank Building. His work will be limited to the treatment of cases of goitre and general surgery.

The Medical Society of the State of North Carolina

Is to hold its annual meeting at Pinehurst, April 28-30, under the presidency of Dr. Albert Anderson, Raleigh. Dr. L. B. McBrayer, Southern Pines, is secretary-treasurer.

New York Polyclinic Gives Testimonial Dinner to Dr. K. Winfield Ney.

The staff of the New York Polyclinic Medical School and Hospital, the pioneer post-graduate medical organization in America, on March 7th, at the Hotel Astor, gave a brilliant testimonial dinner to Dr. K. Winfield Ney, Dean and Professor of Neuro-Surgery. The

dinner was given to Dr. Ney in appreciation of his services in the reorganization of the institution, and was attended by the trustees and 125 members of the teaching staff.

During the war, post-graduate teaching at Polyclinic was abandoned, its staff being greatly depleted by many of its members assuming military service. The Government took over the institution for the treatment of wounded soldiers, and because of lack of hospitalization facilities was unable to relinquish the institution until 1922, at which time it was returned to Dr. John A. Wyeth, its original founder.

At this time Dr. Wyeth was advanced in years and died before effecting a satisfactory reorganization. Without his leadership, the institution for the next two years passed through a rather uncertain period during which it made but little progress.

In the summer of 1924, Dr. Ney was placed in charge of Polyclinic and in a comparatively short time has succeeded in establishing a highly effectual post-graduate teaching organization. The Institution is now running full capacity and plans are being made to more than double its facilities.

The New York Polyclinic passed through an experience which was not unlike that of many of the medical men of the country, who gave up their practice and entered the service. After the war, they were greatly discouraged when they returned home and realized that while in the service they had apparently lost their following, but in almost every instance, after a relatively short period they became re-established and did better than ever before.

So with the Polyclinic; after two rather discouraging years of reorganization, it has come into its own and is doing more effectual work in post-graduate teaching than at any time in its history.

Dr. A. J. Hurt,

Chester, Va., has formally announced that he will be a candidate for the General Assembly, at the next election.

New Hospital for Fayetteville, N. C.

Dr. J. F. Highsmith has a half million dollar hospital under construction in Fayetteville, N. C., which will contain about 100 rooms. It is ideally located and will be complete in every detail.

Veterans' Bureau Hospitals Need Occupational Therapy Aides.

There are about twenty vacancies in positions of occupational therapy aide in hospitals of the United States Veterans' Bureau, and applications for these positions will be received by the U. S. Civil Service Commission, Washington, D. C., until April 30.

Full information and application blanks may be obtained from the Commission, or from the Secretary of the U. S. Civil Service Board at the post-office or customhouse in any city.

Dr. O. F. Blankingship,

Richmond, is out again, after having undergone operation for a bad case of appendicitis.

Dr. and Mrs. Charles V. Carrington

Returned to their home in Richmond, the latter part of March, after a visit to Atlanta, Ga.

Dr. Fred M. Horsley,

Who has been practicing for some years at Lovingsston, Va., is now located at Berryville, Va.

Dr. Frank Helvestine, Jr.,

Who graduated from University of Virginia in 1922 and has been instructor in the department of surgery there, is now connected with the staff of Shenandoah Hospital, Roanoke, Va.

The Southwestern Virginia Medical Society

Held its semi-annual meeting in Pulaski, March 26 and 27, under the presidency of Dr. F. H. Smith, of Abingdon. Interesting papers were read by members and several invited guests. "Diseases of the Heart" was the subject for general discussion. The following doctors were admitted to membership at this meeting: Drs. J. S. Bachman, Bristol, Tenn.; W. H. McCarty, Marion; J. Randolph Chitwood, Ivanhoe; R. W. Cannaday, Spring Garden; E. A. Holmes, Broadford, and H. R. Farley, Pulaski. The annual meeting of the society will be held in the early Fall. Dr. E. G. Gill, Roanoke, is secretary of this society.

The Association of American Medical Colleges,

At its annual meeting in Boston, last month, elected Dr. Hugh Cabot, of Ann Arbor, Mich., president; Dr. David L. Edsall, of Boston, vice-president; and re-elected Dr. Fred C. Zapfle, of Chicago, secretary. The next meeting will be held in Charleston, S. C., October 26-28, 1925.

Dr. and Mrs. John Randolph,

Of Arvon, Va., have returned home after a visit to Richmond in March.

Dr. E. R. Ferguson,

Of Harrisonburg, Va., is taking a post-graduate course in diseases of the eye, ear, nose and throat, at the New York Polyclinic Medical School and Hospital, New York, City.

The American Society for the Control of Cancer,

At its annual meeting on March 7, elected Dr. Howard Canning Taylor, of New York, president, Dr. Francis Carter Wood, New York, vice-president, and re-elected Mr. Thomas M. Debevoise and Mr. Calvert Brewer, secretary and treasurer, respectively. Since the death of Dr. Powers in December, 1922, Dr. Taylor has served as acting president and chairman of the executive committee. He is one of the founders of the Society and one of the leading gynecologists of this country.

Dr. Dean Lewis Accepts Position at Johns Hopkins.

Dr. Dean Lewis, chief surgeon at the University of Illinois, has accepted a similar post at Johns Hopkins University, Baltimore, and will enter upon his duties next September. Dr. Lewis is recognized as one of the leading surgeons of the country.

Dr. and Mrs. Elisha Barksdale

Have returned to their home in Lynchburg, Va., after a visit to New York.

Dr. M. W. Sinclair,

Class of 1916 Medical College of Virginia, has recently become associated with the Bluefield Sanitarium, Bluefield, W. Va., as pathologist. Dr. Sinclair, after graduation, was intern at the Polyclinic Hospital, Philadelphia, and later did special work in pathology at the Rockefeller Institute, New York, the Phipps' Institute, Philadelphia, and Department of Surgical Pathology, Johns Hopkins Hospital. Dr. Sinclair served overseas in the World War doing bacteriology and serology in Base Hospital Center at Nantes. In becoming associated on the staff of the Bluefield Sanitarium, Dr. Sinclair's work is limited entirely to pathology.

The Gorgas Memorial Institute

Seems to be accomplishing its initial purpose of uniting laymen and doctors, and instilling into the masses a recognition of the fact that scientific medicine is the only proper

authority in health matters. The value of periodic health examinations is a subject that the foundation is stressing in hundreds of newspaper articles, in public talks and in radio addresses, the country over.

Scores of editorials have been written and published by leading newspapers. Without exception they have deep sympathy with the ideals of the organization and heartily endorse it.

The County Societies are also proving receptive to the Gorgas Idea, and see in the movement a plan which will aid each member individually.

Medical Center of New York City.

The work on the Medical Center which was initiated through the combined efforts of the Columbia University and the Presbyterian Hospital in the City of New York, is making steady progress. The Joint Administrative Board reports that the excavation for the combined School and General Hospital Building is now advancing rapidly, and that contracts for the steel, brick, sand and gravel have been awarded and that work on the foundation will commence May first.

There have recently been two important additions to the Center. The Babies' Hospital and the Neurological Institute of New York have both signed agreements with the Joint Administrative Board and will receive land for the erection of their new institutions as a part of the Medical Center.

The Babies' Hospital which is at present located at 55th Street and Lexington Avenue, is unique in its field as it is the only institution which up to this time has devoted its effort exclusively to children under four and one-half years of age. It is well known also, through the work of the late Dr. L. Emmet Holt, and its research work in feeding and surgery of infants. In the new Center the scope of the Babies' Hospital will be expanded to include older children.

The Neurological Institute of New York which has just completed its fourteenth successful year is equally unique in the medical field. It is the first co-operative effort of a Neuro-Psychopathic group in America to meet the growing need for treatment and study of the neurosis and early mental disorders among the working classes. The growing menace of this increasing group of nervous disorders has been met with their limited facilities, not only

by treatment but by research and the training of physicians and nurses in the care of this particular type of individual.

The Joint Administrative Board is at the present time composed of: General William Barclay Parsons, Chairman; Dean Sage, Robert W. de Forest, Walter B. James, Edward S. Harkness, John G. Milburn, John Sherman Hoyt, Robert Thorne, with Dr. William Darach, Dean of the Medical School, acting in an advisory capacity; and Dr. C. C. Burlingame as Executive Officer.

Civil Service Examinations.

Open competitive examinations are announced for the following:

Physiotherapy aide, physiotherapy pupil aide, and physiotherapy assistant, receipt of applications to close May 9 and June 13.

Graduate nurse and graduate nurse (visiting duty), applications to be rated as received until June 30.

Junior medical officer, assistant medical officer, associate medical officer, medical officer, and senior medical officer, applications for these positions to be rated as received until June 30.

Full information and application blanks for any of the above may be obtained from the U. S. Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. Civil Service Examiners, at the post-office or customhouse in any city.

Bulletin of the New York Academy of Medicine.

The first number of Volume I, Second Series, made its appearance in March, and is a credit to the Academy. As early as May, 1850, the New York Academy of Medicine agitated ways and means for publishing its proceedings. Since then, at various intervals several plans have been tried, but all were more or less short-lived. During the past few years the activities of the Academy have increased so considerably, that the present Bulletin was decided upon. It will contain from time to time, lectures, discussions and papers presented at the Academy and it will be used also as the official medium for presenting recommendations, reports and the various activities of the Academy. Dr. Charles L. Dana is chairman of the present committee on publication.

Progress Made in Control of Cancer.

Dr. George A. Soper, managing director of the American Society for the Control of Can-

cer, in his annual report, presented evidence to show that the efforts of the Society to acquaint the public with the early symptoms of cancer in order that those affected might receive early treatment had borne fruit throughout the country. Reports from the State chairmen showed that patients were going to physicians earlier and consequently had better prospect of cure. The report showed that the Society had done excellent work among the public and members of the medical and dental professions. It was recommended that "cancer weeks" be generally held and that the good work being done in some states be duplicated elsewhere in the country.

Atlantic City Meetings.

The American Laryngological, Rhinological and Otological Society has completed arrangements for its 1925 convention which it will hold at The Ambassador, May 22-25. The American Proctologic Society and the Association for the study of Internal Secretion will also meet at that hotel directly following the L. R. and O.

From advance reservations already received, officers of the three societies believe that the attendance will be the largest in the history of the organizations.

The Association of Surgeons of the Southern Railway

Will hold its annual meeting in Savannah, Ga., May 12, 13 and 14, under the presidency of Dr. H. R. Black, of Spartanburg, S. C. An excellent program is being arranged.

Child Labor in Argentina.

Argentina passed a child labor law applying to the entire country on September 30, 1924. Under the new law fourteen is the minimum age for employment in any industrial or commercial establishment. Children under eighteen may not be employed more than six hours a day and thirty-six hours a week—a higher standard than exists in any State in the United States. Night work and employment in certain dangerous occupations are prohibited for boys under eighteen years of age and women of all ages.

Maternity and Infancy, Vermont.

The Vermont legislature voted during the last week in February to accept the provisions of the Federal Maternity and Infancy Act, bringing the total number of States co-operating with the National Government under this Act up to forty-two.

Working Mothers, Switzerland.

Under the Swiss Federal Factory Act of 1919, any woman worker who has household responsibilities may request a Saturday half holiday, and her employer must grant the request. This section of the Act went into effect January 1, 1925.

Wanted.

Assistant physician, mental diseases. Salary, \$1,800-\$2,000 a year.

Apply State Employment Commission, 22 Light Street, Baltimore, Maryland. (Adv.)

Obituary

Dr. Silas M. Stickley,

One of the few remaining old time family doctors of Frederick County, died at his home in Stephens City, Va., March 20, death being due to paralysis. He was born at Strasburg, Va., seventy-three years ago and studied medicine at the College of Physicians and Surgeons of Baltimore, from which he graduated in 1879. He had been a member of the Medical Society of Virginia since 1894. He was also a Mason and a member of several fraternal organizations. He had practiced in Stephens City for forty-five years and had on different occasions served as magistrate, councilman and mayor of that place. He is survived by his second wife and several children by a former marriage.

Dr. Thomas J. Kagey,

Of Newport News, Va., died on February 26, as the result of a stroke of apoplexy which he suffered the previous day, while playing golf. He was born at Quicksburg, Va., in 1880, and upon completion of his academic education, he studied medicine at Jefferson Medical College from which he graduated in 1904 and became a member of the Medical Society of Virginia in 1906. He served in the medical corps of the army during the World War, after which he resumed his practice in Newport News. His wife survives him.

Dr. Frederick C. A. Kellam,

Pungoteague, Va., died at his home in that place, January 5. He was seventy-nine years of age, and graduated from the University of Maryland, School of Medicine, in 1866.

Dr. Arthur Wesley Greene,

Ahoskie, N. C., a graduate of the University College of Medicine, Richmond, in 1904, died at a Norfolk, Va., hospital, February 4, at the age of forty-six years. He was a member of the Medical Society of the State of North Carolina.

Dr. Thomas Graham Faulkner

Died at his home at Kinston, N. C., February 6. He was thirty-eight years of age and studied medicine at the University College of Medicine, Richmond, graduating in 1910.

Dr. Thaddeus O. Joyner,

Of Severn, N. C., died in Suffolk, Va., March 21, death being due to pneumonia. He was forty-eight years of age and a graduate of the University College of Medicine, Richmond, in 1899. He is survived by his wife and three children. The body was taken to Severn for interment.

Dr. Walter T. Williamson,

A trustee of the American Medical Association since 1920 and chairman of the Board since June, 1924, died suddenly at his home in Portland, Ore., March 2, death being due to myocardial degeneration and angina pectoris. He graduated from the University of California Medical School in 1877 and had lived in Oregon since 1889, where he specialized in nervous and mental diseases. He was a prominent member and ex-president of his State Medical Association and represented the Oregon State Society in the house of delegates of the American Medical Association for several terms.

Professor August von Wassermann,

Director of the Kaiser Wilhelm Institute for experimental therapy and professor of internal medicine at the University of Berlin, died in Berlin, March 16. He was fifty-nine years of age and was one of Germany's greatest medical research men. He was known throughout the medical world as the originator of the Wassermann blood test.

Mrs. Leonora C. Trout,

Wife of Dr. Hugh H. Trout, of Roanoke, Va., died at her home in that city on March 16th, after a protracted illness with leukemia. Mrs. Trout was the daughter of Mr. and Mrs. Charles H. Cocke, of Hollins, Va., and a graduate of Hollins College. In addition to her husband, Mrs. Trout is survived by three children.



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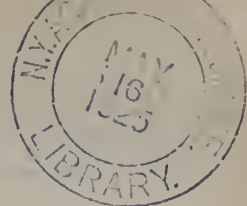
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Original Communications

TETANY WITH THYMUS GLAND ENLARGEMENT.*

By LITTLETON DAVIS, M. D., Roanoke, Va.

My reasons for grouping tetany or spasmodophilia with enlargement of the thymus gland will become more apparent after we have considered each separately, and then, briefly, their possible relation to the clinical signs and symptoms which are supposed to be, and perhaps may be, associated with either.

It has long been held, and without satisfactory explanation, that thymus gland enlargement is a prominent cause of sudden death in infants and young children. Surgeons, pathologists, and others whose work is aimed at reduction or removal of this gland, before or after death, have been the chief supporters of this view. From a careful review of many writers on this subject one fact stands out rather clearly, i. e., the symptoms attributed to an hypertrophied thymus rarely fail to include those that we see in infants having tetany.

Schultz¹ classifies tetany under the infantile diathesis, and mentions that it is often associated with status thymolymphaticus. Holmes⁶ reported several cases associated with a large thymus in 1916.

Tetany may be active, manifest, or latent, coming out under certain favorable conditions. The symptoms may be mild or severe, varying from a slight crowing inspiration at the least excitement, all the way to complete apnoea with sudden death. A typical case of moderate severity gives a loud inspiratory stridor with a short arrest of breathing, the head is thrown back, the arms upward, the face is pale or slightly cyanosed, and has a death-like expression, the eyes rolling upward. Violent efforts to breathe are made, with a squeak or crow with each effort, as a slight amount of air passes the glottis. So soon as the loss of consciousness is sufficient for a general relaxation of muscles, the glottis relaxes

and breathing begins, although it is slow, deep, and stertorous for some time. There may be general convulsions or only the characteristic contractions of hands and feet, the thumb in the palm with the first two fingers bent over it and the toes strongly flexed with the feet turned inward. Many of the so-called nightmares and doubtless some of the sudden croup cases are manifestations of tetany. Some form of respiratory disturbance has been a feature in all of my tetany cases.

Important diagnostic signs of tetany are Chvostek's sign, the contraction of muscles supplied by the facial nerve on lightly tapping over this nerve, and Trousseau's sign, the hand taking the position of tetany when the arm is squeezed above the elbow sufficiently to impede the circulation in the forearm. Muscle excitability to cathodal opening contractions below 5 m.a. is taken to indicate tetany and a recent and most important finding is a lowered blood calcium to 6 or 7 mg. per 100 c.c. of blood, 10 mg. being normal for the healthy infant.

THE THYMUS: Symptoms that have been attributed to thymus pressure or an enlarged thymus have been indefinite, owing partly to their very nature. Among these may be mentioned a choking sensation with which parents have stated their children are afflicted in coughing spells which come on at night. Crotti² says choking spells may last only a few moments or be prolonged. Under diagnosis he states that respiration seems embarrassed all the way through. Stridulous breathing, contractions of the hands and feet, cyanosis and convulsions are also given as signs of thymus pressure. Dyspnoea with inspiratory stridor, thymic asthma with or without rales and with expiratory dyspnoea, continuous or with intermission, are given by others. The striking similarity between these symptoms and those previously given for tetany is apparent.

We owe much to X-ray workers, for our recent knowledge of the size and the normal time of involution of the thymus gland in infants. The thymus at birth varies in weight

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

from 5 to 20 gms., the average as given by Hammer is 13 to 14 gms. It is biggest soon after birth and diminishes in size throughout the first year, only a few remaining full size in the second year. In most cases atrophy takes place spontaneously at any time during the first year.

Liss,³ in X-ray measurements from 119 cases in young infants, came to the above conclusions. Forty-two per cent of these normal new born infants had thymus glands measuring over 3 cm. transversely and marked enlargement. Apparently at the time of study none had shown respiratory disturbances of any kind.

Hammer (taken from Park⁴), making careful autopsies on thirteen children, reported as thymus deaths, found only two of the thymus glands enlarged. Greenthall⁵ reports twenty-five per cent of ninety cases rayed for thymus shadows as having these glands enlarged, three of this number having a diagnosis of thymic asthma.

A large proportion of tetany cases have enlarged thymus glands. Especially is thus true of the very young infants under four or five months old. Whether this percentage is higher in tetany than that for normal infants of the same age remains to be proven.

My own meagre studies have led me to believe that the most severe, typical and persistent tetany is inherited, shows at an early age, is probably a manifestation of deficient or defective parathyroids, and that many of these infants develop enlarged thymus glands, perhaps along with the parathyroids, in an effort to make up such deficiency of function that may exist. If such a control could be proven, it may account for many of the cases which have been latent showing at a later period of childhood after complete thymus involution.

Of the four cases reported here, three were breast fed, one eight months old was bottle fed. The thymus was markedly enlarged in the three breast fed cases. It was absent in the bottle fed case. Two of the cases were Roentgen rayed for thymus reduction; there were no bad after effects noted other than a failure to gain weight for about thirty days following exposure in both cases. No abatement of the symptoms of tetany following treatments was noted. Were the symptoms due to pressure from size of thymus alone, except in rare cases of tumor of thymus, we should see improve-

ment following Roentgen raying of this body, since there is definite and sure shrinking following these treatments.

Case 3 was a mild case, following whooping cough. The thymus was quite large, but was not reduced, and recovery was prompt after heavy doses of calcium chlorid and the usual whooping cough remedies.

Case 4 had an attack while on X-ray table, ceased breathing entirely for a few seconds, although a few moments before baby had seemed normal and lively. In this case there was no increased thymic shadow and a few minutes after the alarming attack baby seemed all right again. Condensed milk was stopped, 50 to 60 grs. calcium chlorid given for several weeks daily, and there has been no further return of symptoms.

In view of the recent tendency toward thymus reduction by Roentgen rays, in infants showing respiratory disturbances and convulsions, the frequent association of thymus enlargement with tetany and the constant overlapping of symptoms between the two, a much closer study of this subject is needed, at the present time, if we are to know what to do in young infants with a combination of clinical symptoms that may be so slight as almost to escape notice or of such severity as to be fatal in a few minutes' time with the first attack.

I wish to express my thanks to Dr. McKinney for his careful X-ray work and his interest in the few cases here reported.

CASE 1.—H. D., two and one-half months old, breast fed, well nourished, short neck, high chested infant. Had long expiratory cry since birth. Mother had convulsions as an infant and shows pronounced Chvostek now and always has had slight involuntary twitching of thumb and first two fingers.

Infant at two and one-half months began attacks of laryngo-spasm with general convulsions, continuing these at varying intervals from two a day to one or two a week, gradually becoming less frequent after ten months old. Chvostek and Trousseau signs constantly present, and hands and feet in position of tetany immediately after and sometimes at intervals between attacks. X-ray fourth day after attacks began shows very large thymus shadow, which was reduced by raying. Two months later there was a return of shadow which was again reduced by raying. At ten

months old there was less general tetany, still occasional severe attacks of laryngo-spasm, no thymus shadow, and about three months backward in muscular activity. Weight was nineteen pounds; well nourished infant.

Medical Treatment: From 20 to 70 grains of calcium chlorid was given daily, together with breast feeding and sunlight exposure.

CASE 2.—H. H., breast fed, three months old, robust, high chested. First attack was a slight convulsion, followed by catchy inspiration somewhat like snubbing. Chvostek and Trousseau signs present; no carpo-pedal spasm between attacks. X-ray showed a large thymic shadow. Reduced by raying. There were two subsequent mild attacks. Chvostek still present at eight months of age, but no further attacks.

Medical Treatment: Fifteen grains of calcium chlorid were given three times daily, together with sunshine, fresh air, and breast milk.

CASE 3.—This was a robust, nine months old breast fed infant. During the fifth week of whooping cough, had convulsion followed by marked carpo-pedal spasm, stridulous cough, and some twitching of hands and feet. Chvostek and Trousseau were present for several days after this. X-ray three weeks later showed enlarged thymus shadow; not rayed.

Medical Treatment: Calcium chlorid 15 grains was given three times daily. Bromide of soda and antipyrin were also used, together with breast feeding. No return of symptoms.

CASE 4.—A. P. Condensed milk was fed in this case until nine months of age. This infant was well nourished, although there was a mild rickets. Began sudden attacks of croup with convulsions, attacks occurring four or five times daily. On slight handling or excitement I found baby would show marked inspiratory stridor with short, complete apnoea. There was no carpo-pedal spasm, but Chvostek and Trousseau signs were positive. X-ray revealed no thymus shadow.

Medical Treatment: Plain milk formula, calcium chlorid 15 grains three times daily. Cod-liver oil was also used, together with plenty of sunshine. There were no further symptoms.

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- Anchor Building.*

X-RAY TREATMENT OF ENLARGED THYMUS IN CHILDREN.*

By JOSEPH T. McKINNEY, M. D., Roanoke, Va.

In a critical study and review of the literature on enlargement of the thymus gland in children, with or without associated hyperplasia in other nearby lymphoid structures, one encounters many theories and conflicting view points.

However, it is now practically generally agreed, and undoubtedly proven, that many of the sudden deaths in previously apparently healthy children are due to disturbances of the thymus gland. Enlargement of the gland, both on X-ray and post-mortem examinations, with evidence of pressure on the trachea, has been found in a number of these cases, no other cause of death being found. Hedinger, in autopsies in eighteen cases of "Thymus Death" in infants, demonstrated pressure on the trachea in each case. Beueke made similar observations, and Chevalier Jackson, by bronchoscopy, demonstrated actual pressure upon the trachea in a case of enlarged thymus. These children are frequently found supposedly smothered to death in bed.

To quote from a recent article by Peterson and Miller, Professor and Instructor, respectively, of Obstetrics in the University of Michigan School, *Journal A. M. A.*, July 26, 1924: "He (the obstetrician) must ever be on the alert to detect in the new born infant signs of thymic disturbance. Ignorance or carelessness in this regard will no longer be excused, since it is becoming a part of common knowledge that babies often die from some disturbance of this gland." Dr. Peterson concludes that "Abnormally enlarged thymus is common in the new born, occurring in from forty to fifty per cent of such infants. Potential dangers from hyperplasia of the thymus may be eliminated by early diagnosis and Roentgen ray treatment." To quote further from a recent article by Dr. Howland G. Freeman, read

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

at the annual meeting of the American Pediatric Society, June, 1923, he states in his opening paragraph: "The thymus gland presents an interesting subject for investigation because its enlargement is accompanied by characteristic and often dangerous symptoms, and this enlargement and the symptoms which accompany it are usually readily controlled by a perfectly safe curative agent, the X-ray. The association of sudden death with thymic hypertrophy has long been known."

With the various conceptions of the causes of thymic death, time will permit the mention of only a few—compression of the trachea, nerves or great vessels, the probability of some toxin produced in the gland, or possibly some influence upon the para-thyroids, or a peculiar cardiac inhibition.

It may be of interest to briefly review the anatomy. The gland is composed of medullary and cortical substances surrounded by a capsule. It is made up of two pyramids, right and left, the bases lying on the pericardium, and the apices extending up in the cervical region, there being a cervical and thoracic type of enlargement. The cervical portion comes in intimate contact with the lower pole of the thyroid, being connected by a thyro-thymic ligament, containing branches of the inferior thyroid vessels. The thymic arteries are composed of a group of small vessels taking origin from the thyroid arteries, superior and inferior, internal mammary, and innominate artery. It is a very vascular organ, and rich in blood supply, the arterial supply being apparently richer than the venous drainage.

The cervical region of the gland is in relation inwardly and posteriorly with the trachea and inferior laryngeal nerve, and in the thorax with the vagus. Posteriorly, in the thoracic region, the thymus lies upon the right auricle and ventricle, and close to the vena cava.

The absolute diagnosis of enlargement of the thymus gland is dependent upon an X-ray examination, and few pediatricians now put much dependence in the percussion note or dullness. As a practical point, what then are sufficient signs of an enlargement of the gland to order an X-ray examination? First, I may say that, were it practicable, it would be well to examine the chest of all new born babies. This not being practicable, any child who is under-nourished, is subject to breath holding or fainting attacks, preceded by choking

attacks, stertorous breathing, listlessness, sleeps with hands over the head, and does not thrive as a normal baby ought to on a well-balanced diet, should be X-rayed. If, in addition to this, the child is having slight convulsions without temperature, and has labored respiration, cyanosis, with regurgitation of food, and a somewhat putty appearance, the diagnosis clinically is much more suspicious. However, there is one exception to the under-nourished child. Babies with fat short necks and robust build are also fit subjects for thymic hyperplasia. The offspring of stout, obese mothers are more apt to have thymic hyperplasia.

I want especially to emphasize the fact that a number of normal children, as stated before in this paper, probably forty to fifty per cent, will show enlarged thymus, and that by no means all of these will show symptoms; in fact, a great number of these cases never give any symptoms, but I also want to emphasize the fact that there is, so far as is known, no way of telling which of these cases may develop early, or at a later time, symptoms referable to the thymic hyperplasia, and, also, that the Roentgen-ray appearance as to the enlargement is no absolute criterion to follow. I believe there may be a very small hyperplasia in the cervical region scarcely observable by the X-ray examination which may give you far more symptoms than a larger gland noted in the thoracic portion of the gland.

The safe procedure in this condition is to give all cases which show definite Roentgen-ray evidence of enlargement one or two treatments, even though there are practically no symptoms from the gland at the time. However, after one or two treatments are given and the child remains symptom free, I do not believe further treatments should be kept up, nor should you then continue to treat a shadow in the upper part of the chest.

Within the past two years I have seen twenty cases of enlarged thymus in children ranging in age from four weeks to twenty-three months old. Two of these cases were babies who had died suddenly without apparent cause, one found smothered to death in bed only two weeks ago. Both of these babies were X-rayed after death, and showed definite enlargement of the thymus. A post-mortem on one of these cases revealed an enlarged thymus, with so far as could be determined no other known cause of death. Two other cases of sudden death in



Fig. 1. Case 1. Baby B, age 4 months. Enlarged thymus. No symptoms, other than a slight hoarseness upon crying, and somewhat underweight. Parents apprehensive since a former, perfectly healthy baby, aged 4½ months, about two years ago had been found dead in bed, apparently suffocated.

Fig. 2. Case 1. Baby B, one week later, after X-ray treatment, showing marked reduction in thymus. Three other treatments given, hoarseness disappearing, and weight returning to normal. Has never developed any further symptoms. Observed for past eighteen months.



Fig. 3. Case 2. Baby J. S. (colored), age 8 months. Enlarged thymus with definite symptoms, convulsions, cyanosis, labored respiration, etc.

Fig. 4. Case 2. Baby J. S., ten days later, following X-ray treatment. Gland reduced. Symptoms improved. Developed whooping cough at this time, thymus again enlarging during the attack. Given two X-ray treatments, with complete recovery.

apparently healthy babies, not included in the above twenty, were thought by the attending physician and coroner to have died of an enlarged thymus, although a post-mortem or X-ray examination was not obtained.

One fatality occurred. Baby M. S., age four weeks, normal delivery, and healthy up to the third week, when parents phoned physicians that the baby seemed to have a cold and

that her breathing was bad. When the attending physician saw the baby she was almost cyanotic and had marked labored respiration. He suspected an enlarged thymus, which was confirmed by X-ray examination, and an X-ray treatment was given on Saturday, March 17, 1923. The baby appeared to be some better on Sunday, but died suddenly on Monday, March 19, 1923. I feel that could this baby

have been treated sooner, we most probably would have saved her.

The remaining seventeen cases have been given from one to four X-ray treatments with the following technique: nine inch gap, 5 ma., 4 m. m. aluminum filter, ten inch distance, with three to five minutes' exposure directly over the gland. In each instance there has been a definite and marked reduction in the size of the gland, with an improvement in the symptoms. No fatalities have occurred in these seventeen cases.

Of the three cases reported by Dr. Littleton Davis in his paper, one was fluoroscoped, and no definite enlargement of the gland was noted, no plates were made, and the child was not seen at a subsequent time, so it is possible that there may have been some enlargement in the cervical portion of the thymus, not detected by the fluoroscopic examination. One of the other cases of Dr. Davis's, baby Arthur H., age four months, was given one treatment. April 25, 1924, and one week later the gland appeared to be practically normal in size. Further observation showed no definite return of the enlargement. Dr. Davis says the child still shows some tetany symptoms, though it is thriving and appears to be doing well.



Fig. 5. Case 3. Picture of thymus gland, weight 26.2 gms., found on post-mortem in one of the sudden deaths reported, no other cause for death being determined.

The third case of Dr. Davis's, age two months, showed on January 4, 1924, a most marked enlargement of the thymus. One X-ray treatment was given on January 6, 1924, and within one week's time the gland showed

definite reduction in size. Dr. Davis says the slight convulsions and tetany symptoms have not been very much influenced by the treatment. In April the gland again showed evidences of enlargement, and one other treatment was given April 6, 1924. After this treatment the gland appeared practically normal, and a film taken October 10, 1924, shows only a very slight enlargement at this time. Thus, in the three cases in which Dr. Davis reports tetany symptoms, one baby showed practically no enlargement of the thymus on fluoroscopic examination: the other two showed enlargement, one being given one X-ray treatment, the other two treatments three months apart. It is conceivable that both of these babies were given too little X-ray treatment, and that their tetany symptoms may be due to the thymus hyperplasia, which has never been completely reduced.

One of the other cases has been of exceeding interest. This was baby N. C., twenty-three months old, referred by Dr. Paul Davis, April 8, 1924. This child had been hoarse for three months; she was referred to a nose and throat specialist who advised the removal of tonsils and adenoids, but before doing this an X-ray examination was made. A marked and definite enlargement in the cardiac area and shadow was noted. Feeling that this very probably was an atypical thymus overlying the heart, we gave the child an X-ray treatment, and in one week the shadow of the cardiac area was definitely reduced. Two other treatments were given, but the child did not recover from her hoarseness, and we felt that in addition to the apparent enlargement of the thymus, she had papilloma in the larynx. The case was sent to Dr. Chevalier Jackson who confirmed the diagnosis, did a tracheotomy, and has since removed the papilloma. The child is still in Philadelphia, and is reported as doing well. This case emphasizes the importance of looking for other associated conditions, even though an enlarged thymus may be present.

Of the eight cases referred by Dr. Roger DuBose, two developed whooping cough during the treatment for the enlarged thymus. The gland in both instances was seen to enlarge during the attack of whooping cough. One of these was in a negro baby, the only enlarged thymus I have seen in the negro, and one of the most marked enlargements in the whole series.

CONCLUSIONS.

1. Enlargement of the thymus probably occurs in forty to fifty per cent of normal infants.
 2. Not all cases of thymic hyperplasia give symptoms, but it is advisable to treat this condition when found.
 3. Thymic hyperplasia, directly or indirectly, is now generally conceded as a cause of sudden death in children.
 4. Accurate diagnosis of enlarged thymus can only be made by X-ray examination.
 5. X-ray treatment offers a safe curative remedy in this condition.
 6. The possibility of other diseases and conditions being present with an enlarged thymus must not be overlooked.
- 620 Shenandoah Life Building.

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DISCUSSION.

DR. ROGER H. DuBOSE, *Roanoke*: I have enjoyed the papers very much. Personally, I have had six or eight cases under my observation in the last two years, and I have yet to find any definite symptoms by which to make the diagnosis without X-ray. None of the mild cases started with the same symptoms. Some came in because they were troubled with hoarseness, others with difficulty in swallowing. Three came in with convulsions. Each of these children was referred to the X-ray and showed enlarged thymus. All were treated and, so far as I know, all are living. There was one little fellow, just shown you, not a patient of mine, who began to have convulsions about ten P. M. The next day the doctor asked to do an autopsy. Went down next morning and had it X-rayed and did autopsy. It is the case just shown you, the gland weighing 26.2 grams.

Dr. Davis made the statement that tetany is associated with many thymus cases. I did not find it associated with any of mine except one colored child suffering with malnutrition, and I attributed it to that.

I want to ask one question before this discussion is closed. Did Dr. Davis have a calcium content test on any of these cases, and, if so, what did it show?

DR. VINCENT W. ARCHER, *University*: At what phase of respiration did you take the films, or did you take several at different phases, choosing the one with the least diameter? The diameter of the shadow of the thymus gland varies during various phases of respiration, sometimes as much as fifty per cent.

DR. A. L. GRAY, *Richmond*: I am glad Dr. Archer brought out that point. Dr. Grier, of Pittsburgh, showed films of the thymus gland in a number of children taken while quiet and taken while crying. As Dr. Archer has said, the dimensions of the thymus of a crying child may be almost twice that of the same child while composed. So in comparing our results it is necessary that the plates be made under exactly the same circumstances.

This brings up another interesting question. Why is it that a child has these attacks of convulsions with obstructed respiration when crying, and perhaps will not when in perfect rest? The demonstrations of Dr. Grier showed this very clearly. When the child cries the thymus enlarges immediately, followed by dyspnea and convulsions.

One other point in regard to papilloma of the larynx. It has been my privilege to treat eight or ten cases with X-ray, and I think I have never had more satisfactory results than in the treatment of these cases. In a large percentage of them it shrivels away and the larynx becomes normal after a few series of treatments.

DR. D. M. KIPPS, *Front Royal*: Do these cases of tetany with thymus gland enlargement have a general enlargement of the lymphatic tissues?

DR. E. G. GILL, *Roanoke*: I am interested in these papers from a viewpoint of a laryngologist. It seems to me that any child that complains of embarrassment of respiration should have the benefit of a laryngeal examination before any treatment is instituted. The importance of this examination is emphasized by the fact that one of the cases which was diagnosed as having enlarged thymus gland, later proved to be a case of papilloma of the larynx. The laryngeal examination can be made with a direct laryngoscope in any home, without any anesthetic, either local or general. It can be done in a few minutes and is perfectly harmless and a safe procedure.

In regard to X-ray treatment of laryngeal papilloma as suggested by Dr. Gray, it has been my experience that this condition is essentially a benign, self-limited one. The papilloma will disappear in the course of two or three years, regardless of whether you do or do not treat it. The one thing that you have to do is to provide for respiration and this can be done by performing a tracheotomy. After the tracheotomy is done there should be repeated excisions of the growths, but not with the intention of curing this condition, but only for providing breathing space. The child should not be allowed to depend entirely upon the tracheotomy tube. The tracheotomy tube worn should be only one-half the diameter of the trachea. This will allow breathing space through the tracheotomy tube and larynx.

DR. W. P. McDOWELL, *Norfolk*: I would like to ask Dr. Davis if he has made X-rays of any babies

with evidence of spasmophilic diathesis which did not show enlarged shadows of the thymus. If so, what percentage?

One of the cases he reported did not seem to have an enlarged thymus. Does he not think that this was a case of spasmophilia, or was there some definite enlargement of the thymus?

DR. LITTLETON DAVIS, *Roanoke*, closing discussion: Let me take the last question first. We did not make any comparison between enlarged thymus cases and spasmophilia cases. The baby which did not show enlarged thymus had the same symptoms as the others which did show enlargement. We thought this case was due to excessive sugar diet (condensed milk).

In none of our cases were tests made for blood calcium content. Some were tested for hyperexcitability of muscles.

One point I wish to make: If we could tell when there is definite thymus pressure, it would be easier to say whether or not X-ray treatment actually causes remission of symptoms. Spasmophilia symptoms are often transitory or of short duration.

One other point: Nearly half of all babies have enlarged thymus glands which remain, after death from any cause. There is then, it seems to me, no satisfactory reason for giving enlarged thymus alone as a cause of death without other evidence.

In regard to cervical thymic enlargement: From my standpoint it is inconceivable that an enlargement of this portion of the gland should produce more symptoms than an enlarged thyroid in the same region. Regardless of size of thyroid, it is rare indeed that goitre patients die suddenly from thyroid pressure. It is something to think over.

DR. J. T. MCKINNEY, *Roanoke*, closing discussion: Dr. Archer brought out a point well known to X-ray men: The importance of taking films with suspected thymic enlargement both after inspiration and expiration. This we invariably do, as the shadow of the thymus varies considerably during the respiratory movements, and frequently a great number of films have to be taken for comparison.

In regard to papilloma of the larynx: I feel that this is a condition which is frequently overlooked. In the last six months I have had six cases of papilloma and believe, as stated by Dr. Gill, that some of these cases will recover without operation. One case I mentioned, however, was operated upon, and will be in Philadelphia for several months under Dr. Chevalier Jackson's care.

Dr. Gray brought out the point that X-ray therapy is very efficacious in cases of papilloma. I am treating two cases now, and they are improving.

There was no lymphatic enlargement in the cases reported.

I want to emphasize Dr. Davis's closing remark, in the handling of these thymic cases: The co-operation of the pediatrician, and general practitioner is of the greatest importance. More and more cases of enlarged thymus will be recognized and found, if the condition is suspected and looked for.

THE GHOSTS THAT HAUNT US.

It isn't the thing you do, dear,

It's the thing you leave undone,

Which gives you a bit of heartache

At the setting of the sun.

The tender word forgotten,

The letter you did not write,

The flowers you might have sent dear,

Are your haunting ghosts tonight!

—Margaret E. Sangster.

CLINICAL SIGNIFICANCE OF CHANGES IN THE BLOOD CHEMISTRY.

By WM. H. HIGGINS, M. D., Richmond, Va.

A hundred years ago Prevost and Dumas read a paper before the Society of Physics and Natural History of Geneva in which they showed that when the kidneys were removed from rabbits, urea rose to a high concentration in the blood. This work was the starting point for blood chemistry, and paved the way for its clinical application in the study of a variety of diseases. Clinicians, however, have been slow in making use of analytic studies on the blood for it has only been within the last ten years that quantitative chemical blood tests have been carried out on any extensive scale and only within the last few years have the smaller hospital staffs become at all dependent upon these determinations as diagnostic aids. Curiously enough we find that many physicians in private practice are still rather indifferent to the practical application of these special studies and for some reason have not sensed the importance of such tests.

No diagnostic study may be considered complete without a knowledge of the more common chemical ingredients of the blood, and fortunately the tests with few exceptions have been so simplified as to make them routine in many types of cases. Formerly, our energies were devoted to a study of the structural defects of an organ, but through the influence of physiological chemistry, we now recognize the fact that the greater problem is the determination of the degree of functional impairment. With this end in view, an insight into the chemistry of the blood is indispensable.

The purpose of this paper is to point out the clinical significance of certain deviations from the normal which may be found in the study of the more important chemical constituents of the blood. These modern aspects of biochemistry are probably familiar to all of us but a review of their practical applications may be worth while. Obviously only a brief reference to each of the major elements can be made in a summary of this kind.

Blood Volume.—We are indebted to Keith,¹ Rowntree and Geraghty for calling attention to the practical application of this laboratory development. The principle underlying this test is the introduction into the circulation of a non-toxic slowly absorbable dye (vital red) and its determination in the plasma colorimet-

rically by comparison with a suitable standard mixture of dye and serum. Normally the plasma constitutes about one-twentieth of the body weight. The volume occupied by corpuscles was found to average 43 per cent for the cells and 57 per cent for the plasma. On this basis these observers have calculated that blood normally is 8.8 per cent of the body weight. With this method they were able to demonstrate the amount of decrease in blood volume as a result of hemorrhage and of the increase following infusion of saline. It has also been shown that the blood and plasma volume are increased in pregnancy before term, but return to normal within a week or two after delivery. Brown² and Keith have shown that in obesity the plasma and blood volumes are relatively small. Anemia shows a high blood volume, a similar condition existing in anasarca following cardiac decompensation. On the other hand the blood volume is relatively low in marked hypertension, which tends to prove that the elevated pressure is not dependent upon a large blood volume.

Non-Protein Nitrogen.—Although the non-protein nitrogen constitutes only about 1 per cent of the total nitrogen of the blood, greater interest is attached to it than to the protein nitrogen. This is due to the fact that cellular metabolism is dependent to a great degree upon variations in these non-protein constituents. Normally the non-protein nitrogen of whole blood yields between 25 and 35 mgm. per 100 c.c. and urea nitrogen lies between 10 and 15 mgm. Since urea is the chief nitrogenous waste product and its estimation is simpler than that of the non-protein nitrogen, the urea estimation is usually made.

The level of urea is the most reliable single test of renal function at our disposal. In advanced cases of nephritis with impending uraemia the retention may amount to several hundred mgms., although 100 mgm. and over is relatively uncommon. A urea reading above 25 mgm. after a night's fast is indicative of some renal impairment. Relatively high figures are found in acute infections and circulatory disturbances, due probably to kidney complications. In cases of prostatic obstruction Squier³ and Myers have pointed out that the urea is an excellent prognostic test not generally going over 20 mgm. in uncomplicated cases.

Uric Acid.—In the normal metabolism of man uric acid and its related substances are

derived in the main from the decomposition of nucleo-proteins. These latter are found endogenously in the nuclear material of cells and exogenously in foods containing purin bodies, such as thymus, kidney, liver and brain. Although muscle is relatively poor in it, the large consumption of it makes it the most important carrier of purin bodies in the ordinary diet. There is no difference between red and white meat.

Since the more reliable tests have been employed, uric acid is not the bug-a-boo it formerly was. It is found between 1 and 3 mgm. per 100 c.c. of normal blood but may be increased to 10 mgm. in cases of gout, and advanced nephritis. A high reading is seldom due to an increased production but rather to a decreased elimination. Its content is also affected by eclampsia, cardiac decompensation, lead poisoning, malignancy, leukemia and acute infections. In many instances of an early nephritis a retention of uric acid may be noticed before any change is demonstrable in urea or creatinine.

Creatinine.—Creatinine determinations have been possible only since 1914. In normal individuals the creatinine of the blood amounts to 1 or 2 mgm. per 100 c.c. Its chief value in the study of disease lies in its prognostic application. Its increase is a safer index to the degree of renal impairment than urea for the reason that creatinine on a meat free diet is entirely endogenous in origin and its formation very constant. Urea is largely exogenous under normal conditions and is, therefore, subject to greater fluctuations. A lowered nitrogen intake may reduce the work of the kidney in eliminating urea, but cannot affect the creatinine to any extent. A creatinine reading of 5 mgm. or over is generally considered as an indication of an almost invariable fatal termination.

Sugar.—The most widely used biochemical test is the quantitative determination of sugar in the blood. Simplified micro-methods are now available which give reasonably accurate results.

The blood sugar of the normal human subject taken before breakfast falls between .09 and .12 per cent, the average being .10 per cent. These figures apply to venous blood, although after a night's fast there is little difference between venous and arterial blood. Foster⁴ has recently shown that finger blood is virtually

arterial blood and that after the ingestion of glucose the sugar content is materially higher than venous blood.

All forms of glycosuria are accompanied by hyperglycemia except renal diabetes. The normal threshold of sugar excretion is about .17 per cent. With blood sugar concentration of .15 to .20 per cent the appearance of sugar in the urine is dependent upon whether or not diuresis exists, glycosuria appearing especially in the latter case. When glycosuria finally starts, it may continue until the blood sugar almost reaches normal. Ordinarily in the early cases of the disease there is a fairly direct relationship between the hyperglycemia and glycosuria. In the latter stages, however, there is often a marked hyperglycemia with only a slight glycosuria, showing that the threshold has been raised. This has been our experience on several occasions during the past year. An associated chronic nephritis often accounts for this finding. This apparent discrepancy between blood and urine tests has served to emphasize the importance of blood sugar determination. For many years the treatment of diabetes was controlled by urinary examinations which in many instances failed to show the true condition on account of an elevated threshold. The general trend of opinion on this point is in favor of controlling the blood content, although Mosenthal⁵ has suggested that the raised threshold may be merely a protective measure to adjust carbohydrate metabolism for the more advantageous utilization of glucose.

Aside from alimentary glycosuria and involvement of the pancreatic islands, a hyperglycemia may occur in hyperthyroidism, in some cases of cholecystitis, nephritis, and occasionally in acute infections. We recently had a patient with an abscessed appendix and high blood urea develop a marked hyperglycemia which persisted until his acute infection had passed.

A low blood sugar reading on the other hand is frequently observed in myxedema, pituitary disease and sometimes Addison's disease. Recently Henderson⁶ has shown that there is a lowered blood sugar following physical exhaustion, and others have found similar changes in the fatigue neuroses. High carbohydrate feedings have been recommended for both of these conditions.

Among the blood lipoids, *cholesterol* is the most important member. It occurs in the blood

in both the free and combined state and is present in a concentration of about .15 per cent. It constitutes an index of the degree of lipemia in diabetes and may run as low as .07 per cent in pernicious anemia. In general it may be stated that a high cholesterol reading is found in arteriosclerosis, diabetes, obstructive jaundice, in many cases of cholelithiasis, in the early stages of malignant tumors, and in pregnancy. Its chief diagnostic importance, however, lies in the recognition of Epstein's nephrosis where there is a marked hypercholesterolemia. It is recalled that in the latter condition there is a low blood urea but there are other distinct evidences of a nephropathy.

Mineral Constituents.—The chief mineral constituents of the blood are sodium, potassium, magnesium and calcium. With the exception of the last one, all remain remarkably constant in health and disease, and consequently have practically no diagnostic interest.

Calcium is the outstanding exception in the mineral class, and today it is recognized as influencing to a large measure the development of many clinical entities.

In 1909 MacCallum⁷ showed that tetany was indirectly caused by a reduction in the calcium content of the blood. According to Howland,⁸ tetany developed when the blood calcium fell below 7 mgm., and was promptly relieved by the administration of the drug in proper doses. Marriott and Howland were the first to point out that the serum calcium in advanced nephritis with phosphate retention and acidosis is markedly reduced.

It has, of course, been found diminished in certain types of anemia and albuminuria, and more recently its low level in urticaria, hyperesthetic rhinitis, asthma, etc., has received considerable attention. Pottenger's studies on calcium in asthma have been extremely interesting as many cases which formerly resisted other methods of treatment, can be relieved by the administration of the drug.

Chlorides.—Although chlorides are commonly found in most foods and are demonstrable in both the cell and plasma, few clinical generalizations regarding pathological variations can be made.

It was formerly thought that chlorides were increased in arterial hypertension, thus acting as one of the major causes of this condition. Later observers, however, have failed to corroborate these earlier findings. High blood

chlorides have been found in certain types of nephritis with oedema, eclampsia, prostatic obstruction, in anemia, and in certain cases of malignancy. It is interesting to note that in nephrosis, despite the marked oedema, there is no salt retention.

The most striking fall in blood chlorides has been observed in experimental pyloric obstruction in dogs. Hayden⁹ has shown that this decrease is not due to loss of chlorides in the gastric juice but probably to the taking up of the chlorine somewhere in the process of protein destruction. They have employed sodium chloride therapeutically in pyloric and intestinal obstruction and believe that it has a marked effect in preventing and controlling the toxemia.

Phosphorus.—Although the presence of phosphorus in the blood in lipid form has been recognized for some time, its inorganic compounds are of greater clinical interest. Normally the acid soluble phosphorus varies between 2 and 6 mgm. per 100 c.c. Bloor¹⁰ gives the average content of inorganic phosphorus in the plasma of both men and women as about 3 mgm. per 100 c.c. and of lipid phosphorus about 7.5 mgm.

On account of the introduction of simpler methods in the determination of this blood constituent a number of interesting clinical observations have been recently made. de Weese-low¹¹ has reported his studies on fifty-three consecutive cases of nephritis with thirteen deaths. In twelve of the fatalities the highest phosphorus reading ranged from 10 to 22 mgm. He believes that phosphate retention is more definitely connected with the symptoms of true uremia than is retention of urea.

Howland¹² and Kramer have published equally interesting observations on the relation of phosphorus to rickets, which is now a matter of common knowledge. These authors have shown by clinical studies that the rachitic infant has practically one-half of the inorganic compound to which it is normally entitled. By the use of cod-liver oil or ultra-violet light there is an immediate response in the percentage of phosphorus.

The chemical changes relating to the acid-base balance in the blood have been shown to exert a definite influence over the clinical course of many disease processes. In health, the alkaline reaction of the blood is maintained by means of the bicarbonates, phosphates, and proteins circulating in the blood. Of these, the

bicarbonate is the most important factor, supplying approximately three times as much alkali as all the other buffers combined. Van Slyke¹³ and Cullen have shown that the CO₂ content of the blood plasma is practically all in the form of bicarbonate and that a determination of the amount of this factor will indicate the so-called alkaline reserve.

The practical result of these studies has been to call attention to the possible serious effects following the administration of alkalies. Hardt¹⁴ and Rivers have reported unfavorable reactions with the Sippy treatment in certain cases of duodenal ulcer. Alkalosis has also developed in patients with pneumonia to whom alkalies have been freely given and there is reason to believe that in cases with impairment of renal function dangerous complications may arise unless the acid-base balance is carefully followed. The alkali deficit, such as occurs in diabetes, has been known for some time, but only within recent years have the dangers of therapeutic alkalinization for this condition been fully recognized. Acidosis from this source is now approached from a different angle and very rarely is bicarbonate of soda considered a judicious measure in the treatment of this complication.

The significance of changes in the chemistry of the blood is still veiled in doubt in numerous instances, but the chemical studies of the past few years have given a rational understanding of many obscure problems and have opened up therapeutic possibilities which were hitherto unknown. There is reason to believe that the ideal diet in disease and health will be ultimately determined by a study of these physiologic processes and that the chemistry of individual foods will receive greater emphasis in our laboratory training.

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The writer has quoted freely from the exhaustive discussion of this subject by Victor C. Myers, published in *Physiological Reviews*, Vol. IV, April, 1924.

SURGICAL TREATMENT OF UNILATERAL PULMONARY TUBERCULOSIS.*

By S. S. GALE, M. D., Roanoke, Va.
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No real progress was made in the treatment of tuberculosis for 2,000 years, from the time of Hippocrates until about fifty years ago; then, within the brief period of half a century, there appear three great landmarks of progress. Brehmer and his pupil, Detwiler, revolutionized the treatment of pulmonary tuberculosis by the application of hygienic methods, *e. g.*, fresh air, forced feeding and rest. Trudeau, of Saranac Lake, brought all of this to the attention of the profession of this country. The second outstanding landmark was artificial pneumothorax discovered by Forlanini in the early eighties. The third mile-post is found in the surgical treatment of those cases which remain not sufficiently benefited by hygienic treatment and artificial pneumothorax.

This country is not accustomed to consider itself behind in surgical endeavor, yet we have to admit that we have been unduly backward

in the surgical treatment of pulmonary tuberculosis. The surgical role of this drama has been written and played almost exclusively by Swiss and German surgeons. Scandinavia, England and France followed Switzerland and Germany. About two years ago, Archibald, of Montreal, reported fifteen cases, his first case having been done in 1912, his work being interrupted in 1914 by the World War, to be resumed three years later. Archibald caught the inspiration from such men as Friedrich, of Marburg, and Henschen, Sauerbruch's assistant, while we in the United States followed Archibald, of Canada, except, it should be remembered, that Freeman, of Denver, in 1909, recommended that a few ribs in front be removed over the upper lobe and a truss be applied to compress cavities in the apex.

Watson, of Mt. Regis, reports 117 cases in which artificial pneumothorax was used in the treatment of more or less advanced unilateral cases which had failed to respond to the usual hygienic treatment and presented little hope of improvement without collapse. He partially collapsed seventy-nine (67½ per cent) and completely collapsed thirty-eight (32½ per cent). Of the latter thirty-eight, only one is now arrested, and twenty-nine are dead. The remaining eight are bedridden except one. Out of the seventy-nine, he has been able to rehabilitate twenty. Out of the 117 cases, only twenty, or 17 per cent, have been able to return to some kind of work.

In reviewing these statistics, one is immediately struck with the small percentage of improvements or cures, showing that pneumothorax is only beneficial in about 17 per cent of the cases, the other 83 per cent receiving very little, if any, benefit. I have tried to find out the reason for this, and in my judgment it is due to several causes. First, artificial pneumothorax can only be done in cases in which the contra-lateral lung is very slightly, if at all, involved. If the opposite lung is even moderately diseased, compression of the bad lung will throw too much work on the other lung and cause a rapid dissemination of the tubercular process, thus defeating our effort. Second, artificial pneumothorax is impossible when dense or even moderately dense adhesions are present, the adhesions preventing compression. Such statistics as these show us, notwithstanding the marvelous progress that has been made in the treatment of this deadly disease, whose

*Address of President before the Southwest Virginia Medical Society, at Marion, September 11-12, 1924.

mortuary statistics a few years ago headed the list of the causes of death in this country, but which now on account of the advances that have been made in the past fifty years has dropped from first to third place, that there are yet a large number of cases that do not respond to treatment by hygiene and artificial pneumothorax. It is in these cases that we feel that surgery offers hope.

It may be conservatively estimated that at present there are in this country 15,000 persons with pulmonary tuberculosis for whom surgical interference is indicated, many of whom are living at home, too diseased for admission to sanatoria, spreading infection and unable to work, and, if unaided, almost certainly doomed to die.

Statistics compiled by Alexander show that within the past five years Sauerbruch, of Zurich and Munich, has alone reported over 500 operated cases, while the total number from all clinics in the United States and Canada is 110. Archibald has performed forty operations since 1912; Shivers, of Colorado Springs, reports twenty-seven patients since 1914, Lilienthal, of New York, twelve, Law, of Minneapolis, eleven, Welles, of Saranac Lake, eleven, Eloesser, of San Francisco, five, Willy Meyer, of New York, five, and there have been other smaller series.

The reason this operation has been so slow in being adopted is ignorance of the method, its indications, execution and results. In a standard American text-book on tuberculosis, 1922 edition, we find only three pages devoted to description of the method, and only nine small pages in the 1920 volume of a 32 volume French system of medicine; both of these accounts are uninformed, inaccurate and misleading. A further significant reason for the slow popularization of surgical compression therapy is that certain articles, purporting to represent and illustrate standard procedure, but actually describing inefficient, if not dangerous methods, appear from time to time, and are obliged to report such high mortalities and poor final results that those seeking information are driven away from surgery because they are not properly informed and attracted. Probably the two greatest sins are: (1) Reporting cases as operated upon by the "Sauerbruch technic," when the first rib has not been touched. Except in rare cases, resection of a portion of that rib is an essential step in the operation.

(2) The use of partial operations, half-measures, when the widest experience has demonstrated that only total operation may be expected to produce the successful result desired.

Alexander, of Ann Arbor, Michigan, has outlined the only comprehensive survey of modern compression therapy that exists, as far as I know, in the English language. In his paper he outlines a standard procedure that may be expected to give the best results in the light of modern knowledge, in the hope, as he says, that it may help the profession to understand and to popularize it some years in advance of the time when it would arrive by the normal process of diffusion. His paper is based upon a critical review and analysis of the world's literature of the past six years.

One hundred years ago James Carson predicted that if a cure were to be found for pulmonary tuberculosis it would be by surgical operation, effecting a mechanical compression that would put the diseased parts in a quiescent state. In 1885, the first attempts in this direction were made by deCerenville, of Lausanne, thereby initiating the method that is used today. In 1901 and 1903, Garre and Quincke first urged thoracoplasty for hemoptysis, and advocated supplementing it with an extrapleural pneumolysis. Brauer realized that clinical success depended upon obtaining pulmonary compression comparable in amount with that obtained by artificial pneumothorax, which was already effecting remarkable cures. Therefore, he proposed the removal of the entire length of the ribs, two to ten at one sitting, in order to obtain actual compression of the lung, instead of mere relaxation. Friedrich, his surgeon, first operated by this method in December, 1907, and the result was highly satisfactory. However, in their series of twenty-nine cases there were eight operative deaths, a mortality of 27.5 per cent; there were six complete cures, 20.7 per cent. Lenhartz used the same technic and in addition pressed the apex toward the hilus and lost nineteen out of twenty patients. Sauerbruch has used the Brauer-Friedrich technic upon seventy-one patients, sixty-two of whom, however, he operated in two or more stages; his only operative deaths, two in number, occurred after single stage operations. His combined early and late deaths totaled thirty-one (43.6 per cent); his improvements twelve, (16.9 per cent); and complete cures twenty-eight (39.4 per cent).

At present the Brauer-Friedrich operation is obsolescent because of its many dangers. It is still sporadically used for rare cases where the pleura and mediastinum are known to be so thickened by adhesions that mediastinal displacement and flutter are not to be feared. Even then it would be used only by dividing it into two or more stages.

As the Brauer-Friedrich operation was a reaction against the restricted resections of the earlier thoracoplasties, so the present types of operation are compromises between the two—extensive enough for favorable clinical effect, and yet conservative enough to avoid unusual operative dangers.

Pathological Anatomy and Physiology.—Sauerbruch states the history of a patient upon whom he performed thoracoplasty on account of repeated hemorrhages and cavities in one lung in spite of active disease in the other lung; the patient died three months later. There was seen at necropsy a definite tendency to encapsulation, with young connective tissue, of all tubercles and caseous nodules in the compressed lung; its cavities were mere clefts which were being filled with new granulation tissue containing many blood vessels. The uncompressed lung showed new cavity formation and extensive caseous pneumonia, but without any tendency whatsoever toward encapsulation. That the far-advanced lesions in the compressed lung of a dying person were able to progress so far toward arrest in a period of three months is illustrative of the effect of compression.

While bed-rest considerably quiets respiration, it is not able to put the lung at complete rest nor to protect it against the violent movements of coughing. Compression therapy not only does this, and thereby largely checks the movement of toxin-laden lymph into the general circulation and of bacilli-laden lymph to new situations in the lung, but empties the lungs of accumulated products of degeneration, and, by flattening the lumina of the bronchi and alveoli, prevents the spread of infection by the bronchial tree route; most important of all, it is directly responsible for a rapid new growth of fibrous tissue which encapsulates the lesions and eliminates the disease.

As thoracoplasty removes the posterior ends of the ribs and as the gaps are usually filled with new bone without joint formation the bony cage on the operated side is no longer

able to share in respiratory movements, and as dense pleural adhesions soon follow operation, the diaphragm becomes fixed and greatly restricted in function.

Examination of a compressed lung, which has successfully controlled its tuberculous lesions, shows a fleshy mass, full of connective tissue which is particularly evident around the blood and lymph vessels and bronchi, and as septa radiating from the subpleura. Some of the blood vessels may be thrombosed. The tubercles are dry and are seen to be firmly encapsulated by fibrous tissue which either just surrounds them or grows through and through them. If any new tubercles are found, which is rare, they are small, non-caseous, and contain many giant cells.

These favorable effects of compression are apt to be seen only upon disease that is predominantly proliferative or fibrous in character, as the connective tissue for the encapsulations seems to arise largely from that which has already formed in an unsuccessful attempt to cure. As there is little tendency toward connective tissue formation in exudative lesions, lung compression is less likely to be followed by fibrous encapsulation.

Ample necropsy material has shown that the amount of connective tissue in a compressed tuberculous lung is far in excess of that in an uncompressed tuberculous lung, and that it will form in cachectic persons in whom it could not be expected were the lung uncompressed. Factors responsible for the growth of fibrous tissue in lungs are (1) stimulation by toxins in the stagnant lymph; (2) chronic hyperemia; (3) cessation of lung function.

Thoracoplasty Compared with Artificial Pneumothorax.—At present the working rule that thoracoplasty is never to be used when artificial pneumothorax is obtainable is almost everywhere strictly observed. Inquiry into the differences between the methods, and the relation between them, will be of value for a better understanding of thoracoplasty.

The number of patients whose pulmonary disease is sufficiently unilateral to warrant compression of one lung is variously estimated from 2 to 10 per cent. Matson attempted artificial pneumothorax in 248 cases. In 41.3 per cent only partial compression was obtainable and the clinical cures were only 15.5 per cent, whereas satisfactory compressions produced 45 per cent of clinical cures. Saugmann at-

tempted artificial pneumothorax upon 211 third-stage tuberculous patients; 70.2 per cent were able to do ordinary light work when the pneumothorax had been complete; 33.3 per cent when there were only limited adhesions; only 11.5 per cent when there were extensive adhesions. Saugmann claimed that he failed to do satisfactory compression in 30 per cent of his cases.

Numbers of series of cases show that the final results of pneumothorax and of thoracoplasty are about the same, that is, roughly, 35 per cent cured, 30 per cent improved, 35 per cent uninfluenced. Empirically, therefore, it cannot be claimed that thoracoplasty is less effective because it produces less compression than pneumothorax. Each method has certain advantages over the other.

Pneumothorax, in contradistinction to thoracoplasty, is non-deforming, non-shocking, and as compression is produced gradually, at many sittings, it avoids the dangers of acute circulatory and respiratory upsets and of pneumonia from aspiration of large amounts of expressed secretions, or failure to expectorate them on account of operative pain.

Although thoracoplasty upon tuberculous persons is distinctly a major operation with a definite operative mortality (2 to 10 per cent), the new technic, and especially operation in several stages, has made it remarkably safe. While the operation of artificial pneumothorax is an essentially trivial procedure, it entails many grave risks. Gas embolus and pleural eclampsia are real dangers, although not always fatal, and numerous other complications arise, such as accumulation of fluid in the chest which may become purulent, and formation of fibrous adhesions under this fluid which may prevent complete compression. Rupture of the pyo-pneumothorax usually is the result of trying to stretch adhesions with high positive gas pressure, and the outcome is frequently fatal.

The immediate results of pneumothorax are frequently so satisfactory to some patients that they fail to return for subsequent treatment. In such cases if the lung is allowed to re-expand, formation of pleural adhesions invariably prevents subsequent compression and when they return on account of their active symptoms, then thoracoplasty must be resorted to. In order that pneumothorax may be effective it should be continued for about three to five

years. It has been claimed that one of the important advantages of pneumothorax over thoracoplasty is that after the release of the gas the lung resumes its normal function instead of being forever useless. As a matter of fact, if the compressed lung was extensively diseased before the institution of the pneumothorax, it will become so filled with scar tissue after one or two years of treatment that it is of little use in respiration after it has expanded.

In certain cases thoracoplasty should be chosen in preference to pneumothorax. It is preferable to the operation of intrapleural pneumolysis, or the use of Jacobaeus' thorascopes and cautery for adhesions, except when such adhesions are few and slender. The combination of either of these operations with artificial pneumothorax exposes the patient to the dangers and later complications of two distinct operative procedures. Thoracoplasty is preferable to attempts to stretch or tear, with high gas pressure, adhesions which may be near superficial lesions or cavities, because of the danger of lung rupture and rapidly fatal empyema.

Some surgeons with wide experience with both methods believe that thoracoplasty is preferable to pneumothorax, although a few are as yet firm in the belief they should not expose their patients to the dangers of a major operation if satisfactory compression is obtainable with pneumothorax.

Indications and Contraindications. — Only through active co-operation between internist and surgeon is it possible to select cases rationally and to avoid great disappointments. In brief, surgical compression may be said to be indicated largely for unilateral lesions, when all other treatment, including a sufficiently long sanatorium regime and attempted pneumothorax, has failed. From many experienced surgeons and internists comes the plea for earlier operation, especially for patients with incomplete artificial pneumothoraces who are not making satisfactory improvement.

Contrary to expectation, it has been found that even very sick tuberculous persons, with high fever, cavities, and much sputum, stand these major operations remarkably well.

Choice of Operation. — It is obviously impossible to present any hard-and-fast rules about the choice of operative technic. Most cases for whom operation is indicated will do best after

a two-stage "Sauerbruch," or a two-stage "Brauer." As the compression from the latter is the greater of the two, it is indicated for those whose lesions are extensive, and whose general condition is sufficiently good to withstand the somewhat more severe operation. It will be found in a certain minority of cases operated upon by either technic, that the compression has not been sufficient to control the disease. This is especially true of thick-walled cavities and infiltrative lesions that are unusually stiff. In such cases it will be necessary to supplement the original operation by a further removal of ribs posteriorly, or parasternally, or by pneumolysis, which is an extrapleural separation of the lung and both of its pleurae from the ribs and filling the space created with a gauze pack, or fat graft, or a pedicled muscle graft. In certain cases even this will fail to compress certain cavities. Cavity drainage is then indicated. It has been mentioned by Sauerbruch and others that a phrenicotomy as a preliminary to any type of operation is helpful.

Various deviations from the above described operations are indicated to suit certain special conditions, such as the partial removal of a few ribs to compress cavities at the base, certain cases whose lesions are limited to a small area, certain far-advanced cases on both sides, when the partial compression obtained may give so much improvement that later a more radical operation can be performed.

Pre-operative Management.—Patients should be carefully studied before operation in order to determine the condition of the heart. Patients should be taught to cough and empty their lungs, especially cavities, two hours before operation.

Anesthesia.—From Alexander's review of the literature it seems that ether, ether-chloroform mixture, nitrous oxide and local anesthesia have all been used. In America the anesthesia of choice seems to be local anesthesia combined with gas-oxygen. With the pre-operative administration of $\frac{1}{4}$ grain of morphin and $\frac{1}{100}$ grain of atropine, using local anesthesia, $\frac{1}{2}$ per cent of novocain, and high vertebral block of the intercostal nerves with a free infiltration of the operative field, the anesthesia has been entirely satisfactory in the writer's cases. In no case has it been necessary to resort to a general anesthetic on account of pain or discomfort, although as many as nine

or ten ribs have been resected at one sitting.

We wish to put on record eight cases of unilateral pulmonary tuberculosis that have been operated on at the Lewis-Gale Hospital by my associate, Dr. Whitman, and myself since 1916, with seven recoveries and one death, a mortality of $12\frac{1}{2}$ per cent. All of these cases were referred to us by Dr. Everett Watson, of Mt. Regis Sanatorium. We wish to express our appreciation to Dr. Watson and his assistants at Mt. Regis for the histories of these patients, prior to their admission to the Lewis-Gale Hospital, which he has so kindly permitted us to use in compiling these case records.

In Case I, which we report briefly, all ribs except the first were removed.

Case I. Mrs. G. C. M. Housewife. Age fifty. Admitted October 9, 1915. Advanced left side involvement, complicated by tuberculous empyema. Marked emaciation (weight sixty-four pounds), temperature 102° to 103° daily, severe cough and profuse, purulent expectoration. No improvement and in December resection was done at the sanatorium, as patient was too ill to move to the hospital. Following this, there was some amelioration of symptoms, but the drainage continued and during the following year the second to the eleventh ribs inclusive were removed in their entirety, under local anesthesia, in several stages. There was gradual improvement and for the past seven years patient has done own housework and enjoyed good health, though at times there is still a slight drainage.

In 1920, four years later, we operated on the second case.

Case II. Mrs. M. E. C. Housewife. Age twenty-two. First seen by us in February, 1920. Tuberculosis had been diagnosed in March, 1914. Right lung had been collapsed and allowed to re-expand. Following another breakdown in September, 1919, she again took sanatorium treatment, but the lung at this time could not be deflated and her physician had advised thoracoplasty. At this time patient was running temperature reaching 100° to 101° daily, severe cough and profuse sputum, which had an offensive odor not unlike that of a pulmonary abscess. X-ray examination in April, 1920, revealed a dense tuberculous infiltration of all of the right lung, most marked at base, with two cavities in the 5th and 6th interspace in posterior scapular line; there was also fibrosis in the left, back of 1st and 2nd in-

terspaces, using anterior markings. This agreed fairly accurately with the physical findings. Under local anesthesia the 10th, 9th and 8th ribs were removed *in toto*, and several weeks later the 7th, 6th, 5th and 4th. Compression bandages were applied and a fair degree of collapse, where most needed, was attained. There was some temporary improvement, but the contralateral lung went bad and she died two years later.

This case emphasized the importance of careful selection of patients for thoracoplastic collapse.

We next had two cases of intra-pleural pneumolysis. In the first (Case III) a broad band of adhesions, which held open a large cavity, was severed by the open method. A perfect collapse was attained, but there was a stormy convalescence. For three and a half years the patient has been comparatively well but symptoms reappear when the lung re-expands to any extent.

The other (Case IV) was collapsed because of a large hilum abscess. This patient, a physician 54 years old, obtained a good collapse, but a short while later developed ulcerative colitis and died. Autopsy confirmed both diagnoses.

Case VIII. V. E. T. Age twenty-six. Male. Occupation, clerk. Admitted to the hospital April 14, 1924. Went on a camping trip in summer of 1917. Lost about six pounds and began to tire out easily. Was admitted to State Sanatorium in North Carolina, in December, 1917, where he remained until May, 1918, then he returned home and did light work until December, 1918. Had influenza February, 1919. Continued to do light work until he had a hemorrhage in February, 1921; then went to bed at home for six weeks. Shortly after getting up he began running a temperature, and in September, 1921, returned to the State Sanatorium, where he remained until June, 1922. He had sanatorium treatment continually until his admission to the Lewis-Gale Hospital April 14, 1924, a period of seven years. His chief complaint on admission was cough and expectoration of pus, with temperature, and accelerated pulse, loss of weight and poor appetite. Had had chronic cough and expectoration of large quantities of pus and blood streaked sputum at times since 1917. First pulmonary hemorrhage was seven years ago. Had two since then. Occasionally had remission of

cough and gained weight, but periods of improvement did not last long. At time of admission he was having night sweats, was fifteen pounds underweight, and coughing a great deal.

This case was carefully worked out by Dr. Watson, diagnosed as unilateral pulmonary tuberculosis of the left lung with a very slight involvement of the apex of the right lung and advised to have an extrapleural thoracoplasty done on the left side. Under local anesthesia, through a long incision parallel with the erector spinae muscle, sections of all of the ribs on the left side were removed from the second to the eleventh inclusive. He stood the operation splendidly and apparently had little shock when he left the operating room. The following day the patient developed dyspnoea and rapid pulse. Two days later moisture appeared in the contralateral lung, growing progressively worse, and he died on the ninth day.

This patient died because in our enthusiasm we over-estimated his endurance and did too much at one operation. I report this case to emphasize the fact that too much can easily be done at one operation, and that in our opinion parts of not over four or five ribs should be resected at one sitting. In ten days to two weeks more ribs may be removed and two or three weeks later the operation completed. When this precaution is taken, the operative mortality will be exceedingly low. If the operation is done as described, laying stress on the importance of doing it in stages, and the cases are properly selected, only those being operated on which do not respond to pneumothorax, roughly speaking 35 per cent can be cured, 30 per cent improved and probably 35 per cent uninfluenced. With this method of treating unilateral pulmonary tuberculosis we are able to cure and improve 65 per cent of patients who, if left alone, will soon die.

DELAYED SECONDARY HEMORRHAGE FOLLOWING THE OPERATION OF TONSILLECTOMY.*

By J. WARREN WHITE, A. B., M. D., Norfolk, Va.

Primary and secondary hemorrhage is a matter of prime importance, so long as the operation of tonsillectomy is done. Hemorrhage accompanying the procedure may be classified as follows:

*Read before The Eye, Ear and Throat Section, Norfolk County Medical Society.

1. Primary hemorrhage at the time of the operation.

2. Secondary hemorrhage coming on a few hours to twenty-four hours after the operation. These cases are really not secondary at all, but are simply a continuation of the hemorrhage that occurs at the time of operation and has not been properly controlled.

3. Delayed secondary hemorrhage coming on two or more days after an operation.

Very little is mentioned in literature about delayed secondary hemorrhage. It is always referred to as very rare and easily controlled and usually ceases spontaneously. Quoting from Coakley, "In case secondary hemorrhage does take place it is only necessary to remove clots from the tonsillar fossa and insert a ball of gauze and hold it there for a few minutes with the finger or suitable forceps. We have never in all of our operative experience seen a case of tonsillar hemorrhage that could not be controlled in this manner." Quoting from Loeb, "Secondary hemorrhage occurring in two to five days after operation is not frequent and is due to a detached slough or erosion which leaves an open vessel. It usually ceases spontaneously. Pressure should be used whenever it occurs and the patient put to bed for a few days. If it continues in spite of pressure, the pillars should be sutured over a pad of gauze or the bleeding vessel ligated."

Seven cases are reported that have occurred in my own practice, and three of these cases were hemorrhages of a very alarming nature. Before this, delayed secondary tonsillar hemorrhage was never taken very seriously as it usually ceases spontaneously, but as the years of my practice of laryngology have increased the greater becomes my respect for delayed tonsillar hemorrhage.

The usual cause assigned is a detached slough or erosion, but nothing definite in a prophylactic measure is mentioned. Preventive measures are most successfully accomplished:

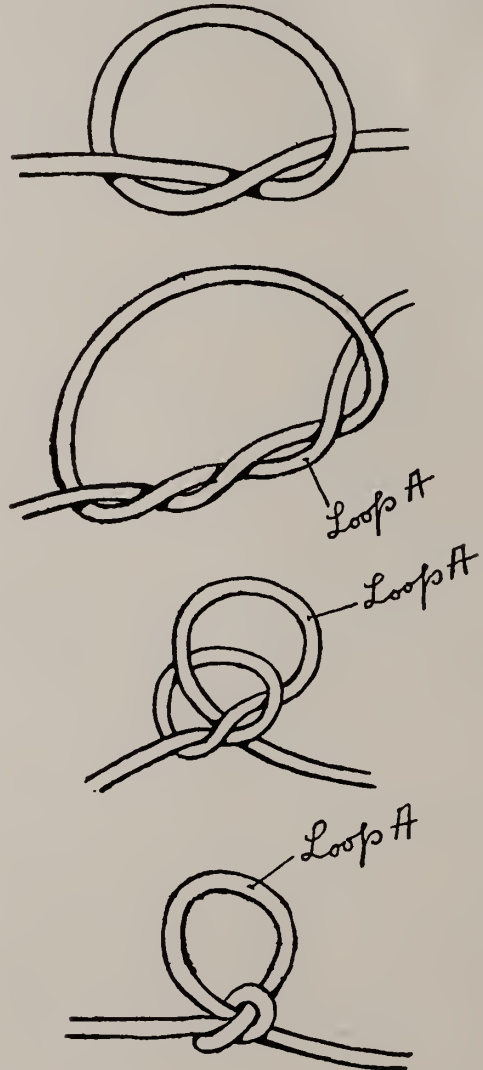
1. By a careful history of the individual case, a physical examination, and the determination of the clotting time of the blood previous to any operative procedures.

2. The ligating of all bleeding points. The tonsillar fossae should be dry before leaving the table.

3. Rendering the tonsillar fossae more aseptic by applying fifty per cent normal tincture of iodine on a cotton pledget.

The technique in ligating makes it simple and easy and is after the method described by Coakley with the exception he uses a slip knot to make the loop.

Knot.—A straight or curved hemostat is used to pick up the bleeding vessel depending upon its location. Cat-gut makes the best ligature, but linen or silk may be used if preferred. The loop should be large enough to slip over the handles of the hemostat holding



the vessel. It is important that the knot should be drawn tight enough to make the free part slide with friction. The non-slip part of the loop is grasped with slightly curved forceps close to the knot and the free end cut off close to the forceps. The loop now is placed over the handles of the hemostat. The

free end of the loop in one hand and the forceps in the other hand grasping the non-slip part of the loop makes it easy gradually to lessen the loop in size by pulling lightly on the sliding part. The loop is lessened in size and with the forceps it is placed over the end of the hemostat and the free end in the hand is drawn tight. The hemostat is removed and the free end is tightened slightly more. The free end of the ligature is cut close to the knot.

Delayed tonsillar hemorrhage is undoubtedly due to an infection which causes a sloughing of the vessel before the intima has become fully sealed. The vessel then opens again and further hemorrhage takes place, which may cease spontaneously or may be of a very alarming nature requiring the most skilful attention to control. If the clotting power of the blood is high, means should be taken to improve same before undertaking the operation. This may be accomplished in most cases by the administration of calcium salts. Some surgeons go so far as to ignore entirely the clotting time of the blood and operate regardless. If the cases reported had had a faulty clotting time, doubtless my difficulties in several of them would have been greatly increased.

From one's personal experience, as delayed tonsillar hemorrhage is not so frequent, it would be hard to show that any particular method of prevention had any value. The method suggested, however, is along the line of surgical principles adopted elsewhere.

REPORT OF CASES

1. Mrs. N., wife of a physician, age 42 years, gave a history of rheumatism for several years. She had an abdominal operation three years previous to this time, and gave no history of excessive bleeding. Physical examination negative. Urinalysis: no albumen, no sugar. Blood: hemoglobin seventy-five per cent; coagulation-time four and one-half minutes.

Tonsils were removed under one per cent novocaine with adrenalin, with very little loss of blood. The operation was performed in the hospital, and she remained three days. There was practically no bleeding after the operation and on her discharge from the hospital there was an exudate covering each tonsillar fossa. She left the city and on the sixth day after the operation I was called on the long distance phone and told that during the night she awoke with her mouth full of blood and since that time had continued to bleed

very freely and that the physician was unable to control it. She was brought in on the train and taken immediately to the hospital. The bleeding was entirely from the left tonsillar fossa. I saw her at 4 P. M. and remained with her until 9 P. M. before the hemorrhage was controlled.

2. Mr. J., age 34 years, gave a history of sciatica and frequent tonsillitis for several years. Physical examination was negative. Urinalysis: no albumen, no sugar. Blood: hemoglobin eighty per cent; coagulation-time three and one-half minutes. Tonsils were removed under one per cent novocaine with adrenalin, with very little loss of blood. The operation was performed in the hospital, and he remained one night. At 4 A. M. on the fourth day after the operation he was awakened by a hemorrhage from the mouth. I was unable to control the hemorrhage at his home and he was removed to the hospital. The hemorrhage was coming from both tonsillar fossae, and was very profuse. I remained in the hospital with patient until 11 A. M. It was with great difficulty that the hemorrhage was gotten under control. The hemorrhage was not checked all at once but gradually and he continued to bleed for several days before the bleeding stopped entirely.

3. Miss C., age 54 years, gave a history of rheumatism. Physical examination was negative. Urinalysis: no albumen, no sugar. Blood: hemoglobin seventy-five per cent; coagulation-time three minutes. Tonsils were removed under one per cent novocaine with adrenalin, with very little loss of blood. The operation was performed in the hospital and she remained five days, and then left the city. Examination at the time of her discharge from the hospital showed a white exudate covering each tonsillar fossa. The seventh day after the operation she had a slight hemorrhage and a physician was called but the bleeding stopped spontaneously after a clot had formed in the tonsillar fossa.

4. Mr. J., age 19 years, gave a history of tonsillitis. Physical examination was negative. Tonsils were removed by the Sluder method under ether anesthesia with less bleeding than usual. He remained in the hospital one night and the next day went home. The third day after the operation at 4 P. M. I was called to the home for a severe hemorrhage from both tonsillar fossae. After three hours' work, not

being able to control the hemorrhage, he was taken to the hospital, and it was with great difficulty that the hemorrhage was checked. It was, however, the next day before the bleeding was absolutely controlled.

5. Mrs. McG., age 29 years, gave a history of frequent tonsillitis and rheumatism for two years. Physical examination was negative. Urinalysis: no albumen, no sugar. Blood: hemoglobin eighty-five per cent; coagulation-time three minutes. Tonsils were removed under one per cent novocaine with adrenalin, with very little loss of blood. She remained in the hospital two days. The sixth day after the operation at 4 A. M. she was awakened by the blood in her mouth. I was immediately notified and had her removed to the hospital. The hemorrhage ceased spontaneously.

6. Mr. D., age 32 years, gave a history of rheumatism for several years. Physical examination was negative. Urinalysis: no sugar, no albumen. Coagulation-time three and one-half minutes. Tonsils removed under one per cent novocaine with adrenalin, with very little loss of blood. He remained in the hospital one night and then went to his home. Seven days after the operation he was re-admitted to the hospital for hemorrhage. The bleeding was only from one side and after the clot was removed and pressure applied with a sponge, the bleeding was controlled.

7. S., age 9 years, gave a history of frequent attacks of tonsillitis. Examination showed enlarged cervical glands; physical examination otherwise negative. Urinalysis: no albumen, no sugar. Tonsils removed by the Sluder method under ether anaesthesia. He remained in the hospital one night and was then taken home. Three days after the operation, he was awakened during the night by the blood in his mouth. I was called to see him, but the hemorrhage ceased spontaneously after a clot had formed in the tonsillar fossa.

The cases I have reported occurred during the course of a practice of eight years, and, although they are rare, it makes us more apprehensive about allowing recent operative cases to leave the city.

CONCLUSIONS.

1. From the cases reported, delayed tonsillar hemorrhage is not prevented by the coagulation-time of the blood being within the normal limits.

2. It occurs when the operation is performed

under general and local anesthesia.

3. It occurs when the operation is performed under ideal conditions in the hospital.

4. It is undoubtedly due to an infection. However, when it does occur, the hemorrhage is more easily controlled if the clotting time is normal.

5. According to the surgical principles adopted elsewhere, the complication will be minimized if all bleeding points are ligated, thereby making the tonsillar fossae dry before leaving the table and rendering the fossae more aseptic by applying fifty per cent normal tincture of iodine on a cotton pledget.

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THE RATIONAL TREATMENT OF PNEUMONIA.*

By WARREN T. VAUGHAN, M. D., Richmond, Va.

The facilities of hospital practice permit more careful study of pneumonia than is possible in general practice, and we must therefore look to the hospital workers for most advances in therapeutic procedure. Nevertheless, it is the general practitioner who has in charge by far the greater number of individuals ill with this disease, and it is well worth the latter's time to keep in touch with newer therapeutic developments so that they may be applied in the home. Fortunately, most of the recent improvements in treatment can be utilized in the home as easily as in the hospital. I shall first discuss general therapeutic measures and later turn for a moment to some of the more recent observations. My discussion will have to do particularly with lobar pneumonia, but from time to time I shall refer to bronchopneumonia, particularly that type which appears in epidemic disease.

The diagnosis having been made, the first consideration is the insurance of adequate rest, and supportive treatment. Rest, both physical

*Read before the Southside Virginia Medical Association, in Petersburg, December 9, 1924.

and mental, is all important. Those of us who saw epidemic pneumonia in the army well know the disastrous effects of evacuation to base hospitals of cases diagnosed as influenza-pneumonia. Those allowed to remain even on the stable floor of their billets, and made as comfortable as possible, frequently did better than milder cases who were transferred many miles to the luxury of a hospital bed.

In securing adequate rest, the services of a nurse are all important. It is usually the nurse who pulls a pneumonia patient through to a successful convalescence. The doctor insures all facilities for a successful fight but, without the aid of a well trained nurse, the physician and the patient are both working under a decided handicap.

Rest in bed with fairly abundant, easily assimilated food and plenty of liquids is the first essential. Whether the patient lies flat or is supported on a back rest is governed by his comfort. Some patients rest easier one way, some the other. The use of a pneumonia jacket to limit chest excursion depends upon the severity of the pleuritic pain. The patient should not be examined oftener than once a day and the room should be cleared of anxious, long-faced relatives. Blistering does no good and interferes with careful chest examination. The same is true of strapping.

The employment of open air treatment varies with the type of pneumonia. In a long series of cases at the Children's Hospital in Boston, it developed that the death rate and the incidence of complications were practically identical in two series of lobar pneumonia, one treated indoors, the other outdoors. As a rule, however, those patients with lobar pneumonia treated in the open air were less cyanosed and were subjectively more comfortable throughout the illness. In bronchopneumonia the case is far different. During the early days of the 1917 measles-pneumonia epidemic in the U. S. Army, when cases of bronchopneumonia with empyema were frequently mistaken for lobar pneumonia, treatment in cold, moist air was disastrous. The same held during the influenza epidemic. In bronchopneumonia with its extensive distribution of moisture throughout the chest, the windows may be thrown wide open to insure an abundance of fresh air but, if the air is not warm and reasonably dry, the patient suffers.

In general we may say that in frank lobar pneumonia, open air treatment is preferable, but that in bronchopneumonia, the air must be warm and fairly dry.

In few other diseases is there such diversity of opinion as to the proper drugs to be employed. We hear of stimulation in pneumonia. Stimulation is favorably discussed in many of the leading text-books. In the majority, however, if recommended at all, it is advised only around the crisis. And yet how many of us have seen patients stimulated with various drugs from the minute the diagnosis is made up through and long past the crisis, even though the pain and increased carbon dioxide content of the blood are forms of stimulation, rarely equalled by the drugs administered. Strychnin is given, as a rule, for its effect on the cardio-vascular system and yet only poisonous doses influence the blood pressure. Camphorated oil is still frequently administered. It is a question whether it has any effect whatsoever beyond the purely local one. Alcohol has been used on the erroneous assumption that it is a cerebral stimulant. In a series of several thousand cases studied at the Massachusetts General Hospital over a period in which many forms of treatment were followed, it was discovered that, irrespective of other methods used, about half of the cases had received whiskey and half had not, and the death rate was approximately equal in both. Thus, if one feels the necessity, particularly for the peace of mind of the relatives for the administration of some drug at stated intervals, whiskey might logically be employed for its food value and as a placebo. But we shall see that there are more efficacious drugs. In the rare case where a respiratory stimulant is really indicated, caffeine is probably the best drug available.

Digitalis has been introduced in the routine treatment of lobar pneumonia, chiefly on the findings of Cohn, that in about ten per cent of cases there develops either transient auricular fibrillation or flutter. The patient is thoroughly digitalized during the first few days so that, if cardiac arrhythmia supervenes, no time will be lost in producing full digitalis effect. It is probable, also, that the drug has some effect on heart muscle as is indicated by changes in the T-wave of the electrocardiogram, in pneumonia cases. In lobar pneumonia there is, then, justification for the routine

use of digitalis, giving one gram in the first two days and repeating the course on the fifth and sixth days. On the other hand, we can produce rapid digitalis effect by intramuscular or intravenous injections, and there is equal justification for withholding the drug until indications for its use arise.

The one drug whose use in my opinion has tided over many a case of pneumonia, even at the crisis, is morphine or codein. The patient does not need stimulation, he needs rest. He is receiving plenty of stimulation from the pathologic condition itself. He has a long hard fight in prospect. If he does not receive adequate rest, his endurance will be insufficient. In my own work, I see that the patient sleeps at night, either with codein or preferably with morphine.

The administration of oxygen, particularly in cyanosed cases, is probably life saving at times. The more striking results are obtained in bronchopneumonia where there is considerably frothy exudate in the alveoli and extending up into the bronchi. During the war Hoover studied cyanosis and dyspnoea in gassed soldiers. Foam in the exudate of the alveoli interferes with the normal transfer of oxygen and carbon dioxide between the alveolar air and the blood. Any portion of the respiratory membrane which is covered by alveolar air foam is deprived of its normal respiratory function, both for the escape of carbon dioxide and for the absorption of oxygen. If a lobe of the lung is filled with this foam, the surface area for gaseous interchange is no longer the very large area of the respiratory epithelium of the lobe, but the cross section of the bronchus leading to the lobe—the surface area of the foam in the bronchus. Hoover showed that gassed soldiers, whose lungs contained much alveolar foam, when breathing pure oxygen, recovered within a few minutes from their cyanosis but obtained no relief from the associated dyspnoea. Within these few minutes the pure oxygen had been well mixed with and absorbed in the alveolar foam, thence gaining access to the blood and relieving the cyanosis. But the concentration of carbon dioxide in the foam remained the same as when atmospheric air was being breathed and the amount in the blood remained unchanged, so the dyspnoea persisted.

Stadie, among others, has been especially interested in the treatment of pneumonia with

oxygen and has obtained promising results in both lobar and bronchopneumonia. Among his conclusions he noted that the use of an oxygen chamber in the treatment of pneumonia patients makes it possible to administer this gas for long periods of time under exactly known conditions. The medical and nursing care of the patient is greatly facilitated. Prolonged inhalation of oxygen varying from forty to sixty per cent appears to be without harm. Oxygen administered to intensely anoxic patients almost immediately clears up this anoxemia. Cyanosis disappears with the anoxemia.

Barach has demonstrated the inefficiency of oxygen administration by the usual funnel method and has devised a simple portable apparatus which gives adequate concentration of oxygen. Oxygen given through a nasal catheter is fairly well utilized and causes surprisingly little discomfort.

Means and Barach summarize their observations on the symptomatic treatment of pneumonia in stating that the outstanding feature is the respiratory battle, with resultant great strain upon the respiratory and circulatory mechanisms. The patient is confronted with necessity for increased pulmonary ventilation and with a pulmonary bellows of reduced efficiency with which to accomplish this added ventilation. He has a greater ventilatory oxygen demand, with decreased facilities for obtaining it. Factors causing increased oxygen demand are the increased metabolic rate from pyrexia, acidosis, deficient circulation, and as we have discussed above, anoxemia. On the other hand the vital capacity of the lungs is decreased by consolidation, edema, pleural pain, and often, also by abdominal distention.

Besides the use of oxygen in anoxic cases, these workers also recommend the administration of alkali to combat the more or less hypothetical acidosis. The urine is usually strongly acid from excretion of organic acids, and alkali is given until the urine is no longer acid, care being taken that an excess is not administered, with resultant alkalosis.

All cases of lobar and bronchopneumonia should have the sputum studied in a search for Type I pneumococcus. The value of immune serum in Type I pneumococcus infection is not universally conceded, but when one has observed time and again a fall of temperature to normal by crisis within twenty-four hours

after the starting of intensive serum treatment, one feels that there must be some logic to the procedure. Every case of Type I pneumonia should receive the benefit of immune serum. The patient should always be first tested for sensitization to horse serum.

On the contrary, serum should not be administered without preliminary typing, and polyvalent serum should not be used. If the case is not one of Type I pneumonia, the serum does no good and at about the time of crisis, when every available resource is needed by the patient to pull himself through, an attack of serum sickness may be the deciding factor in a fatal termination.

We anticipate further improvements in specific therapy from the use of pneumococcus antibody extract.

Vaccine treatment during the acute course of lobar or bronchopneumonia is mentioned only to be unequivocally condemned. The procedure as commonly employed is illogical and no statistics have been adduced to show definite achievements with this method. Rosenow, who was one of the first advocates of vaccine therapy, states emphatically that, although he still believes that the use of so-called sensitized vaccines may have a place in the treatment of the acute disease, the utilization of ordinary vaccines is entirely contrary to his teaching. A personal communication from a leading physician who has been particularly interested in focal infection, states that in his experience the therapeutic use of either stock or antigenous mixed vaccines subcutaneously administered has resulted in no appreciable benefit in the treatment of acute infectious diseases or in chronic general diseases.

Expectorants are illogical in lobar pneumonia. There is little inflammation of the bronchial mucosa and the adding of a mucous secretion to the serous exudate which the patient is raising only increases the work to be accomplished.

A most important function performed by the physician is in the early recognition and treatment of complications. A frequent and sometimes serious complication is the development of abdominal distention. Much of the patient's respiration is carried on with the diaphragm and, if the abdomen becomes distended, by so much will the respiration become further impeded. In his daily examination it is as important for the physician to

examine below the diaphragm as above. Daily enemias given routinely from the onset are preferable to cathartics, because the latter are more liable to produce distention and to be followed by some degree of depression.

Time does not permit detailed discussion of the various complications which must be borne in mind, but chief among these are serofibrinous pleurisy and empyema. To a trained observer, X-ray examination is usually not necessary for diagnosis, although of extreme value for following progress. Even relatively small pockets of pus can, as a rule, be recognized by one of sufficient experience in this particular field. I would caution against unnecessary and repeated needling of the chest, but insist that if one is relatively certain from his examination that fluid is present, a single negative result from thoracentesis is not conclusive.

SUMMARY

Rational therapy in any disease involves one or more of three modes of attack. The first is the removal of the cause whenever this may be accomplished; the second, the removal of the pathologic process resulting from the activity of the causative agent; the third, the relief of individual symptoms as they may arise in the course of the illness, whether they be due directly to the causative agent or whether they result from the anatomical changes in the pathologic process.

First, with regard to removal of the cause which in the disease under consideration is usually the pneumococcus: we must treat the disease as a contagious disease, bearing in mind that the pneumococcus may remain viable for over one month in the dust. It has been recovered from the dust of the room in which the patient is sick in fifty per cent of trials. The first element in treatment is then prophylactic so that we may prevent infection of others. This applies particularly to infection with fixed type pneumococci. Immune serum and antibody extract are remedial agents whose activity is directed against the causative agent. We have no thoroughly satisfactory therapeutic drug. Optochin or ethylhydrocuprein, a quinine derivative, destroys the pneumococcus, but in a certain number of cases has caused optic atrophy and its use is scarcely justifiable at present. It has recently been put upon the market in slightly altered form under a different name.

In the therapeutics of lobar pneumonia we

are unable to carry out the second procedure in rational therapy, namely, the removal of the pathologic process. There is no way in which we may physically remove, as by operation, the pneumonic exudate. In the case of complications such as empyema this may be done.

Under symptomatic therapy we may enumerate supportive treatment in general. Adequate rest, physical and mental, with sedatives as indicated; a light diet with forced fluid; daily enemas to prevent distention and, should this occur, the application of turpentine stupes; temperature baths only for hyperpyrexia; oxygen for the cyanosis, alkali for acidosis, digitalis for evidences of circulatory embarrassment; and, for pain, a pneumonia jacket, either hot water bottle or ice cap, morphine or codein; abundant fresh air for lobar pneumonia, warm fresh air in bronchopneumonia.

I would stress, particularly, careful observation for complications above and below the diaphragm.

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ECLAMPSIA NUTANS (SALAAM CONVULSIONS). REPORT OF CASE.*

By SAMUEL NEWMAN, M. D., Danville, Va.

Convulsions occur more frequently in infancy and early childhood than in any other period of life. To designate convulsions during infancy as *eclampsia infantum*, a term which is still found in some text-books on pediatrics, is not carrying our diagnostic acumen very far, and is not conducive to the giving our little patients the benefit of certain therapeutic procedures which have been evolved by the modern rapid development of pediatrics.

A complete analysis and differentiation of the broad symptom complex of convulsions in the light of highly specialized etiologic moments will be particularly necessary if one is called upon to state the prognosis of a case. It will be impossible for me to discuss here the very important chapter of convulsions in infancy. It is my object to present to you the case record of a very interesting and rare type of convulsions. The discussion of this case will carry with it also a brief outline or classification of convulsions from the etiologic standpoint.

CASE REPORT.

M. R. C., a white female child of eighteen months, was first seen in consultation with

Dr. M. E. Hundley, Martinsville, Va., on August 15, 1924. She was a second, full term, normal delivery with a birth weight of six and one-half pounds. Was breast fed exclusively until the ninth month; weaned at one year. First tooth at six months; sitting up at seven months; walking at sixteen months; not talking yet; grasping and handling toys. During the fifth month baby swallowed a pin; passed it out in the stool without having caused any trouble. During the eighth month she had gripe and bronchitis. Child is on a rational diet.

Present Illness. During the first six months of the baby's life nothing abnormal was noticed. During the seventh month, child began to drop the head forward. This she did once a day and it was always accompanied with rolling of both eyes. Immediately after this spasm the child voided. This condition continued up to the thirteenth month. During the thirteenth month the child had such spasm after each nap, about three during the day. During the spasms the child would throw or jerk her hands and feet and, at the end, make a crowing inspiration. Child never got blue during such spasms. The intelligence, the mother thinks, is deteriorating; the child is not able to learn new things as she used to; does not speak, but is constantly making noises in plaintive tones.

During the fifteenth month the child was examined by a pediatrician. The thymus gland was irradiated twice with X-rays at an interval of three weeks; she was also treated for tetany. Soon after the X-ray irradiations, mother thought the condition improved; however, it soon returned to the way it was before treatment.

Family History. Mother is twenty-eight years of age, father is thirty-nine; no consanguinity. Father has an arrested case of pulmonary tuberculosis; suffers occasionally from insomnia. The first child is two and one-half years old and is perfectly normal. No history of insanity, alcoholism, epilepsy or lues given. Mother regards heredity on both sides as good.

Physical Examination. Color of skin and mucous membranes is normal; turgor of skin, and subcutaneous fat are normal; muscular development is good. No adenopathy of any kind; skeleton, genitalia, heart and lungs are normal. Liver and spleen not palpable. Nose, throat, and eye-grounds were examined by

*Read before the South Piedmont Medical Society, at Danville, Va., November 18, 1924.

specialist and were found normal. Examinations of the nervous, sensory and motor systems does not reveal abnormality. No stigmata of degeneration of any kind; circumference of head is three (3) centimeters larger than that of chest. Child does not speak; mental processes seem slow for child of this age. Urine contained pus. Temperature was practically normal. Spinal fluid Wassermann was negative; Roentgen plate does not show any enlarged thymus (at least, in width).

Description of Spasm. I waited for the child to go to sleep and for her spontaneous awakening. When the child aroused she sat up on the bed and fell over on her face in a series of six or eight motions, extending the upper arms somewhat rigidly outwards and backwards. The child did not pass any urine or feces during or after this convulsion or spasm.

Diagnosis. In attempting to diagnose any convulsions or spasm in infancy and childhood, it is best to make a mental or written outline of all the possible causes of convulsions or spasm and then see, from the evidence obtainable at time of first examination and subsequent examinations, into what class and subgroup the particular case may fit. All convulsions may be divided into three main groups, as follows:

I. *Organic Convulsions.* Convulsions occurring under this group are conditioned upon a lesion or inflammation in the central nervous system. The subdivisions are:

1. Inflammatory conditions of the brain. These are always associated with fever, at least at the beginning of the trouble.

(a) Meningitis (various types).

(b) Encephalitis (various types).

(c) Lues of the brain (in infancy it is manifested as hydrocephalus; in older children, as paralysis).

(d) Hydrocephalus chronicus (congenital or acquired).

2. Circulatory and vascular disturbances.

(a) Hyperemia.

(b) Stasis (in terminal stages of bronchopneumonia, heart defects, etc.)

(c) Anemia and circulatory asthenia of the brain.

(d) Emboli (in heart lesions, diphtheria, etc.)

(e) Hemorrhages (whooping cough, severe infections, lues).

(f) Thrombi.

(g) Sinus thrombosis (otitis, sepsis, and nutritional disturbances).

(h) Traumatic injuries.

II. *Functional Convulsions.* Convulsions classed under this group are caused by conditions *outside* the central nervous system. These are *very* frequent during the first three or four years of life, but not so later in life. This group may be subdivided thus:

(a) Endogeneous toxic convulsions (alimentary intoxication, uremia, etc.)

(b) Exogenous toxic convulsions (drugs, alcohol, metallic poisons, etc.)

(c) Hematogenous infections.

III. *Idiopathic Convulsions.* Under this heading are included all those convulsions which are due neither to a gross organic lesion in the central nervous system, nor to an assignable cause outside the central nervous system. The most that we can say under the present status of our knowledge is that the convulsions are conditioned upon an abnormal irritability of the central nervous system. Under this group the following are included:

(a) Tetany, or spasmophilia.

(c) Genuine epilepsy (grand mal and petit mal).

(d) Eclampsia nutans, or Salaam convulsions.

(e) Hysteric convulsions.

(f) Narcolepsy.

(g) Affected convulsion (tantrums).

From this classification it will be seen that our case belongs in the group of idiopathic convulsions. That this condition is of extreme rarity may be judged from the fact that a very careful search for a discussion or mere mention of eclampsia nutans revealed so far only two references in the English language, one by Crozier-Griffith¹ and the other by Thompson.² In German pediatric literature I found only two references to this condition. In a work of 960 pages³ specifically devoted to nervous diseases of infancy and childhood, no mention is made of eclampsia nutans.

The making of the diagnosis was enabled by witnessing the presentation of a few such cases by Prof. Zappert, in Vienna, and by a clear description of this condition by Finkelstein.⁴

1. Crozier-Griffith, J. P.: Diseases of Infants and Children. W. B. Saunders Co., 1919.

2. Thompson, John: Clinical Types of Convulsive Seizures in Very Young Babies, Brit. M. J., 2:697, 1921.—(Abstract of Nelson's Loose-Leaf Research Service).

3. Bruns, Cramer and Ziehen: Manual of Nervous Diseases in Children, Julius Garger, Berlin, 1912.

4. Finkelstein, H.: Diseases of Infancy, Julius Springer, Berlin, 1921.

In looking for cases of eclampsia nutans one must be careful not to mistake it for spasmus nutans. Similarly, one must not mistake a case of spasmus nutans for eclampsia nutans. Finkelstein emphasizes very strongly the possibility of mistaking one condition for the other. Spasmus nutans is not quite so rare in pediatric practice, and in the larger clinics one may come across such a case quite often. Spasmus nutans is a condition in which continuous or intermittent bending or rotating of the head occurs occasionally, with horizontal or rotary nystagmus. When the head is fixed the spasm becomes more pronounced. The etiology of spasmus nutans will not be touched upon here; but it is very important to know the prognosis of either condition. Spasmus nutans is a harmless condition and it passes away with *certainty* after months of duration. The prognosis of eclampsia nutans is invariably bad. Finkelstein says: "The continued observation of the children affected with eclampsia nutans teaches that there is transition of this condition to epilepsy with or without idiocy, or a development of difficult organic brain lesions. There seems occasionally to be a relationship between this condition and syphilis."

In our case the relationship to syphilis is not borne out either by the clinical or the laboratory examination. As far as I know at present, January, 1925, the child's condition did not improve.

VINCENT'S ANGINA OR ULCERO-MEMBRANOUS TONSILLITIS— DIAGNOSIS AND TREATMENT.

By WILBUR M. BOWMAN, M. D., Petersburg, Va.

The purpose of this article is to compile in a concise form the more or less scattered abstracts on Vincent's angina and to bring to the attention of the physician an infection which is apparently infrequent, the reason being due undoubtedly to the fact that the cases are overlooked or wrongly diagnosed. This point could perhaps not be more strongly emphasized than to report briefly several such instances. An author states a case which was treated first as syphilis, later as diphtheria. Autopsy, however, showed the typical organisms of Vincent's angina in the throat. In another case a surgeon was about to operate on a colored patient for a necrosed jaw bone when it was suggested that the case might be Vincent's. Smears from the throat were examined which

revealed numerous Vincent's organisms. Recently, a colored youth was sent to the hospital with a diagnosis of mastoiditis, but smears stained with methylene-blue showed the typical spirocheta vincentii and bacillus fusiformis.

Nomenclature.—Vincent's angina is the recipient of a wide and varied nomenclature. Some of the common titles are trench mouth, ulcero-membranous tonsillitis, ulcerative stomatitis, pseudomembranous angina, etc.

Definition.—A feebly contagious disease caused by an actively motile spirillum and a non-motile fusiform bacillus affecting the tonsils and uvula, less frequently the mouth and pharynx, or lips, and characterized by the formation of a yellowish-gray false membrane, and in marked cases ulceration extending into the submucosa, fetor of the breath, salivation, the constitutional symptoms being as a rule relatively mild.

History and Bacteriology. — Ulcero-membranous tonsillitis was first described by Vincent, and by him attributed to a fusiform bacillus which he described, although a spirillum was found associated with it. Vincent's observations have since been confirmed, and it has been shown that the spirillum is a degenerative form of the bacillus. Vincent's bacillus is about twice as long as the Klebs-Loeffler bacillus. It is thin, with pointed ends, sometimes bent, and non-motile; it does not stain by Gram's method. The organism is slightly swollen in the middle and consequently referred to as a spindle-shaped bacillus. The bacillus stains unequally and gives a granular appearance. The spirochete is very delicate and is much smaller than the treponema pallidum in syphilis. Its undulations are less pronounced than the syphilitic organisms. It stains much fainter with Loeffler's methylene-blue than the bacillus. The fusiform bacillus is occasionally found alone; the spirillum, never alone. The organism is found in smears from the affected tonsil, in making which it is recommended to go deeply into the necrotic tissue, since the superficial parts are crowded with other bacteria. It is grown with difficulty and only upon special media. The organisms may be easily demonstrated by staining the gently dried smears with Loeffler's methylene-blue solution for three to five minutes, washing off the excess stain, blotting, and then examining under the microscope with oil immersion lens.

In the examination of a case of Vincent's disease that has just recently developed, the slide will show numerous fusiform bacilli and a few scattered spirochetes. At the height of the disease the spirochetes and bacilli are equally numerous. After the case is put on treatment the bacilli become less numerous while there is a big decrease in the spirochetes. After continued treatment the slide will be negative.

Predisposing Causes, Transmission and Frequency.—Some of the more important predisposing factors which make possible a successful bacterial invasion may be enumerated according to Buehler as follows: 1. General neglect of oral hygiene; 2. Faulty crown and bridge work; 3. Poorly inserted fillings; 4. Traumatic mal-occlusion.

The disease is disseminated by direct or indirect contact, as from mouth to mouth, by drinking cups, eating utensils, tooth brushes, etc.

It is seen with greater frequency, especially since the World War. The disease is much more frequent in children over ten years of age than in those younger, and in children under ten it is very mild in form, with rapid recovery.

Pathology.—The pathological picture naturally depends upon the stage at which the condition is seen. You may get ulceration and sloughing of the gums, soft palate, tonsil, pharynx, or simply a yellowish-gray deposit on the mucous membranes. Cases have been observed in which the process caused a perforation of the hard palate or destruction of the pharyngeal wall and necrosis of the adjacent vertebrae. The inflammation resembles somewhat croupous tonsillitis. The tonsil is covered with a dirty, yellowish exudate which may be mistaken for diphtheria. There is superficial necrosis, and when this tissue is wiped away with a swab, bleeding occurs. The denuded area is soon covered by new membrane. The lymph glands at the angle of the jaw are usually swollen. The cheek may appear much swollen in well advanced cases.

More recent experiments in the country lead to the division of the infection into three phases:

1. An acute form characterized by inflammation throughout the mouth, intensified along the margin of the gums, which undergo sloughing, this stage being accompanied by pain.

2. The subacute form in which there is congestion of the gums and membranes of the mouth without sloughing or pain.

3. A chronic infection with little evidence of the disease save a fairly large number of the organisms underneath the margins of the gums.

From the usual pathological findings a writer has noted the following variations:

1. The bright red line of demarcation of the ulcerated surface instead of terminating abruptly may continue into the areolar mucosa.

2. The gingival margins may be intact and not necrotic, but the entire affected gum cyanotic, somewhat bloated, and extremely painful to touch.

3. In the margin of a flap of gum overlying a pre-existing pyorrheal pocket which is the site of acute Vincent's angina, the red line of demarcation is not visible. More than one bacterial examination may be necessary to find the organisms.

Symptoms.—The symptoms vary as to whether the condition is the acute, subacute, or chronic form. The acute form is accompanied by pain while the subacute and chronic forms are not as a rule. One of the distinguishing features to be remembered is that the constitutional symptoms which accompany other forms of tonsillitis are either slight or absent altogether in Vincent's infection. The patient may complain of sore and bleeding gums or slight sore throat on swallowing. The breath has a characteristic fetid odor and often there is profuse salivation. The enlarged cervical lymph nodes are usually tender. The systemic or secondary involvement that may be present depends entirely upon the length of duration of the disease, the virulence of the organisms, and the resistance of the individual. In cases involving the tonsils and which present engorged lymphatics the temperature is invariably above normal. It is well to bear in mind the fact that the pathological findings are far out of proportion to the symptoms.

Course.—The average duration of the disease is given as from one to three weeks for complete disappearance of all clinical indications of the disease. The writer obtained in one case, however, a permanent negative slide for the Vincent's organisms six hours after treatment was started and the patient was entirely free of all symptoms within three days.

One attack is likely to be followed, months or even a few years later, by a recurrence. One author on the subject reports twenty-four healed cases out of twenty five within five and one-half days after a single injection of some arsenic compound. According to some authors, recovery from the ulcerative stomatitis of Vincent's infection may occur within eight to fifteen days. A few cases may reach the physician too far advanced for curative treatment, or others through mistaken diagnosis may result fatally. In a series of 125 cases of Vincent's angina an author reports three fatal cases.

Diagnosis.—The chief interest in ulceromembranous tonsillitis lies in the diagnosis, although it is not an infrequent disease. As a general rule the ulceration, sloughing, or membranous deposit, together with salivation, characteristic fetor of breath, enlarged and slightly tender lymph glands of the neck, the marked lack of constitutional symptoms in proportion to the pathological findings, and the demonstration of the bacillus fusiformis and spirocheta vincentii will serve to distinguish this disease from closely related ones.

A differential diagnosis must be made chiefly from *syphilis*, *diphtheria*, and *croupous tonsillitis*. The differential diagnosis between syphilis and Vincent's angina may be impossible until a positive Wassermann, a general rash, or other stigmata of syphilis make their appearance. The infection may be associated with chancre of the tonsil and in this case the tonsils are edematous and painless, but the disease alone has a characteristic odor, is ushered in with slight general symptoms, and is slightly painful. Furthermore, the organisms may be found by proper bacteriological methods. In diagnosing from diphtheria, we find in Vincent's angina that the exudate is soft and friable and has a great tendency to ulcerate the tonsils. Again, the lack of constitutional symptoms together with the bacterial examination will aid in distinguishing this disease from diphtheria. It is said that the spirochete and fusiform bacillus are found in one-quarter of the cases of diphtheria. Croupous tonsillitis is more often bilateral, painful, with general symptoms, and exhibits follicular plugs, while Vincent's angina is often unilateral and associated with superficial ulceration.

Treatment.—Since there is such a diversity as to methods and the numerous drugs used in

treatment of this condition, the writer attempts to state in a few brief words those which seem to be, from an experimental standpoint at least, the most applicable and efficient.

In the treatment of 125 cases among American troops in France by a physician, best results were obtained by the local application of salvarsan and methylene-blue used alternately. A five per cent solution of picric acid has been recommended as efficient. Another author speaks of excellent effects following the application of carbol-fuchsin stain in infective diseases of the gums observed at the Naval Air Station, Pensacola, Florida. This treatment has been found very effective, even in obstinate cases, it is claimed.

Attention is also called to the striking success which has been obtained from the application of Churchman's mixture, which is composed of neutral acriflavine and genitan violet. While the dyes, neutral acriflavine and rivanol, both derived from acridine, are useful in the treatment of this disease, they are not so efficient as Churchman's mixture which is commercially known as acriviolet.

Another author reports successful treatment of twenty-five cases of ulcerative stomatitis due to the infection with Vincent's organisms in children over one year of age with an intravenous injection of some arsenic compound. In eight cases Boroman's solution was used locally in addition. One of the patients died shortly after the injection from an intercurrent disease. The lesions in the other twenty-four cases were healed on an average of five and one-half days after a single injection.

The local application of salvarsan together with the intravenous injection is a method used which is claimed to give the most satisfactory results. An author states, however, that there is not a uniform opinion as to the specific therapeutic value in the treatment of Vincent's with arsphenamine, as he has repeatedly had throat specialists tell him that this or that case did not clear up after "606" treatment. In a recent article a physician claims dramatic results in the treatment of the disease by intravenous injections of 5 c.c. of a one per cent solution of antimony and potassium tartrate. Several physicians recommend fresh sodium perborate solution as a mouth wash during the acute stage of Vincent's angina. This should be used at intervals of half an hour or less. Hydrogen peroxide diluted with a mild alkaline solution

may also be used, but it is not so effective as sodium perborate. In connection with this, local applications to the ulcerated surfaces are of value, but irritative drugs should be avoided. One of the arspenamine preparations may be used, or an aqueous solution of iodine in combination with a twenty per cent solution of silver nitrate. After the acute stage subsides, the teeth should be thoroughly cleansed by a dentist, and sources of irritation removed; in some cases extraction of diseased teeth is indicated.

Another author describes the treatment of Vincent's angina with a saturated solution of sodium perborate and with the dry powder. This method was successfully used by himself and other physicians in El Paso, Texas, for ten years, where the disease is of comparatively frequent occurrence. A physician recently informed me that all of his cases of Vincent's angina treated with sodium salicylate, fifteen grains every three hours, in combination with a carbolic mouth wash have cleared up within a week.

The most successful treatment is one which avoids any destruction of tissue; whereas picric acid, silver nitrate, iodine, and a long list of antiseptics injure tissue, prevent the development of young granulations, and keep up an irritation which tends to prolong the disease. Sodium perborate is a perfectly harmless drug and one advantage over arsenic preparations is that it can be used as a mouth wash without injury to the teeth.

The writer has followed a routine in the successful treatment of a number of cases that have come under his observation at the Petersburg Hospital, and each case has been closely followed by bacterial examination, using Loeffler's methylene-blue as the stain. The organisms have permanently disappeared as early as six to ten hours after treatment was started as well as a definite, in fact, a marvelous change in the pathological picture. The method used is to put the patient to bed, use ordinary infective disease precautions, and give either a liquid or a light diet according to the severity of the infection. The following morning a saline cathartic is administered. The necrotic material is first removed as gently as possible with a cotton swab saturated with a mixture containing neutral acriflavine, five per cent, gentian violet, two per cent, and methylene-blue, two per cent. The free mar-

gins of the gums and all pockets should be washed out with this solution, a blunt needle being used. The use of the tooth brush should be temporarily discarded to avoid injury of the gums, using, however, as a mouth wash or gargle a two per cent solution of sodium perborate every half hour to an hour, best employed by dissolving one-quarter of a teaspoonful of the powder in two ounces of water at the time of using. Application of the dye mixture should be repeated three to four times a day as a mouth and throat swab until all clinical evidences of the infection have disappeared, following which the teeth are carefully scaled superficially; whereupon the sodium perborate solution is continued as a mouth wash and for cleansing the teeth with a tooth brush for approximately two months. It is most important to bear in mind the fact that the general pathological condition will long have cleared up and present an exceptionally excellent appearance, but the patient should never be discharged as cured until a negative slide is obtainable, thereby obviating a recurrence as well as transmission.

The systemic treatment is not to be neglected, and in those cases with systemic involvement the writer administers several doses a day of elixir salicylic compound. In severe obstinate, or far advanced cases, it is also advisable to use one or two intravenous injections of salvarsan.

After the disappearance of all clinical evidences of the infection, tonsillectomy is indicated as well as the removal of diseased teeth and all sources of irritation. Physicians are to be warned that operative work had best be postponed until making sure by the microscope of the absence of the specific organism.

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CASE OF ENORMOUSLY ENLARGED ESOPHAGUS.*

By BLANTON P. SEWARD, M. D., Richmond, Va.

W. H. S., white, male, age 51, married twenty-eight years, came to the office of Dr. Manfred Call, with whom I am associated, on April 12, 1924. He had had "indigestion, stomach and liver" trouble for twenty-five years. Frequently he felt a "lump at the lower end of the breastbone." Hot salts on arising in the morning gave some relief. No pain was associated with the symptoms, though he felt pain through the left chest one year ago. Fifteen years ago his physician washed out his stomach regularly for one year. In February, 1924, he had an attack of "acute indigestion." At the same time he felt a lump in the left side of his chest, and his stools were dark. His general health was fairly good. He weighed 122 pounds, and he stated that this was the highest he had ever weighed.

Gastro-Intestinal History: At the time of examination his appetite was diminished. The empty stomach was comfortable except for the "hung-up feeling." Food relief was variable, often causing pressure, fulness and distention. He was troubled with marked flatulence, with eructations and passage of gas by bowel. There was no constipation, the bowels moving regularly twice a day. He also suffered with pruritus ani.

Cardio-Respiratory System: Dyspnea noted after exertion, marked pain in the left chest one year ago, occasional palpitation, and arrhythmia were the only significant symptoms elicited.

Genito-Urinary: Three or four voidings daily, none during the night. Voiding was accompanied with irritation occasionally, but there was never any pain.

In the organs of special sense there was nothing significant.

Past History: Typhoid fever in 1915, lasting four months and a relapse. Sciatica seven years ago, and again five years ago. Never had tonsillitis. He was susceptible to colds. One year ago he was operated on for fistula in ano by Dr. Terrell.

Physical Examination: Mouth, nose and ears were negative except for some scaling in the external auditory canals. Heart and lungs were negative. The abdomen showed tenderness in the right iliac region with cutaneous hyperaesthesia. Tenderness increased in left lateral posture. Slight lower right dorsal tenderness. Knee jerks were active. Rectal examination was negative.

Laboratory Examinations: Hemoglobin, 80 per cent; erythrocytes, 4,240,000; leucocytes, 5,000. Differential count: polymorphonuclears, 50; small lymphocytes, 46; large lymphocytes, 1; eosinophiles, 3. Wassermann was negative. Urinalysis was negative. Feces: Blood positive to the benzidine test, but negative to the guaiac test.

We did not feel that our findings were sufficient to account for the patient's symptoms, and we did not wish further laboratory examinations until an X-ray study could be made. Dr. Fred M. Hodges made the gastro-intestinal examination on April 18th, and I shall give his report:

"Esophagus—shows marked spasm of the cardia with extreme dilatation of the esophagus. Shows a retention of about 50 per cent in six hours, and a twenty-four hour retention of about 25 per cent. Do not believe the esophagus ever entirely empties itself. Could not get enough solution in the stomach to make a satisfactory examination, but found no pathology.

"There was slight tenderness over appendix area, but this was not marked.

"Gall-bladder and twenty-four hour colon examination negative."

The patient was sent to Dr. Chevalier Jackson, of Philadelphia, for esophagoscopy. On May 8th, endoscopy was done and the following findings reported:

"Thoracic esophagus enormously dilated.

*Reported at a meeting of the Richmond Academy of Medicine, December 9, 1924.

Mucosa chronically inflamed and covered with a pasty, yellowish covering. Lower portion of thoracic esophagus filled with whitish, pulpy material having the odor of stale food, with no odor of stomach contents. Floor of thoracic dilatation covered with too much pasty food for examination of hiatus." "Duration of operation: two minutes, seventeen seconds."

Second endoscopic examination on May 14th:

"Esophagus quite clean and free from food: an enormous pouch lined with chronically inflamed mucosa: much less pasty than at the last examination in the only portion previously inspected. Large folds crowd in from hiatal esophagus: they can be moved aside and the esophagoscope passes through the abdominal esophagus without hesitation." "Duration of operation: two minutes, three seconds."

"Esophagoscopic diagnosis: Prepericardiosis."

Treatment: After the endoscopic examinations, hydrostatic treatment was begun. The patient swallowed a good sized, strong string, one end of which was attached to the vest while the other end passed through the intestine. On the first swallowing of the string, it did not enter the stomach during the ten days which elapsed. The body was manipulated, that is, bent alternately in different directions by the attendants. Finally, the string passed through the cardia. The string having passed through the pouch, a dilating bougie was threaded to the upper end, introduced into the cardia, filled with water, and allowed to remain there for two to three minutes, thus stretching the cardiac sphincter. He spent the next ten days at home with the string in situ, after which he went back for the second treatment. As it was not necessary for the string to remain in longer, it was removed after this treatment. Eight such treatments have been carried out, the patient swallowing the string the night before the dilating is to be done. After the third treatment the patient noticed marked improvement in his symptoms. During an interval of three months between each of the last two treatments, there was no return of his former symptoms.

As we wished to check the amount of dilatation, Dr. Hodges X-rayed him on October 28th, two weeks before the last treatment, and gave the following report:

"Esophagus almost completely empty in a

few minutes. Shows nothing like as much dilatation as in previous examination."

This man now is symptomatically well, and the measurement of the esophagus shows its transverse diameter reduced to one-half its original size.

The unique features in this particular case are:

I. The long existence of the dilatation which was the cause of his indigestion. Whether the condition was congenital or acquired in early years is not known. However, there is no doubt but that the dilatation increased with years due to the cardiospasm and retention of food in the esophagus. When the stomach tube was used fifteen years ago it is most probable that the dilatation was washed out instead of the stomach.

II. The absence of the loss of weight. In spite of the retention of food in the esophagus for many hours, and the retention of some food all the time, yet a sufficient quantity passed through the cardia and his nutrition was preserved. In all reported cases we have reviewed, marked emaciation occurred.

III. The complete symptomatic relief gained by the hydrostatic treatments. After the third, there was marked improvement, and after the fifth the symptoms were completely relieved.

IV. The reduction of the dilatation to one-half its original size in less than six months.

V. The value of the X-ray. The condition had been obscure for years, and would have remained obscure but for the X-ray examination. After this was made, proper treatment could be directed, and after it had been carried out, the X-ray again rendered valuable service in checking up the amount of dilatation.

Many cases of idiopathic dilatation of the esophagus with cardio-spasm have been reported in this and European countries. As to the cause of the condition, we are lacking in a definite explanation. If we consider the anatomy and physiology of the esophagus, a more definite idea of its pathology may be brought about. The esophagus is supplied by the vagus and sympathetic nerves. These two nerves form a plexus in which groups of ganglion cells lie between the muscular coats of the esophagus. From this plexus fibers pass out to supply the muscle, while others go to the submucous tissue, forming a secondary plexus. The cardiac sphincter receives motor and inhibitory fibers from the vagus, and inhibitory

fibers from the sympathetic system. It is also supplied from an intrinsic plexus, plexus of Auerbach, which, as in other parts of the alimentary tract, is capable of regulating the movements of the musculature independently of the extrinsic nerves. The tonic contraction of the sphincter, which occurs when the stomach contains food, is done reflexly through the intrinsic plexus, the reflex being stimulated by the acid of the gastric contents. As the peristaltic wave passes down the esophagus, the lower portion relaxes and the bolus passes through into the stomach.

Many cases of esophageal dilatation are said to be congenital and live for years before symptoms arise. Probably in the majority, the dilatation is acquired. The explanation offered by certain German investigators for the dilatation is that there is a disturbance in the balance or reciprocal relations between the vagus and sympathetic nerves, or a functional disturbance of the local ganglion. Anything injuring either the nerve or the muscle may disturb the balance between the nerves. These investigators report autopsies in which they found degeneration of the vagus nerve.

Stuart Circle-Hospital.

X-RAY DIAGNOSIS IN GASTRIC AND DUODENAL ULCER.*

By L. FREELAND MAGRUDER, M. Ph., M. D., Norfolk, Va.

Last year I presented a paper before the Surgical Section of this Society on the X-ray diagnosis of gastric and duodenal ulcer, showing a series of plates on which the X-ray diagnosis of ulcers of various types had been made and confirmed at operation. Rather than repeat at this time the showing of plates, it might be well to consider the question from a different angle.

The upper right quadrant of the abdomen has been spoken of with much feeling and not without reason as "Hell's fourth acre." The complex innervation of the viscera is such that this region is pointed out by the patient to the examining physician in all types of abdominal pathology, in lung pathology, in pathology of the heart and aorta, as well as that of the central nervous system.

Patients suffering distress in the upper right quadrant who have not had a diagnosis made or who have been operated upon without relief are seen daily. Duodenal and gastric ulcers

probably lead the field in causative pathology. All diagnostic aids, then, should be utilized in arriving at a correct diagnosis. What contribution can X-ray make in determining a diagnosis? The answer to this question is the purpose of this paper.

Every stomach examination should include a careful fluoroscopic examination of the chest. Adhesions at the costo-phrenic and cardio-phrenic angles, the diaphragmatic excursion, the size and position of the heart and aorta should be noted. By this routine, unsuspected pathology above the diaphragm is frequently demonstrated. The passage of the opaque meal through the oesophagus and its entrance into the stomach gives valuable information in many cases, not only as to oesophageal but gastric pathology as well.

The barium-filled stomach should be thoroughly studied under the fluoroscope both in the standing and in the prone position. The size, shape and position of the stomach should be noted. In passing, I would like to say in reference to the position of the stomach that I am of the opinion that it is a mistake to tell the average patient that they have a gastropnoia or enteropnoia. You can stand on the street corner and pick out the individuals who will show ptosis without the trouble of having them rayed. Unless the ptosis is responsible for delay in emptying time, it is usually not worthy of comment. Directing a patient's attention to ptosis is frequently productive of placing them in a neurotic class. A large number of plates, seldom less than twelve, should be made in the prone position, and one or more in the standing position.

It is estimated that about ninety per cent of gastric ulcers are located on the lesser curvature. If these ulcers involve only the mucosa, and are not indurated, they may escape detection altogether or may be only suspected by the functional behavior of the stomach. Ulcers with induration or scar tissue on the stomach margins, notably the lesser curvature, are as a rule easily diagnosed.

The small percentage of gastric ulcers on the anterior and posterior walls are often missed or diagnosed on presumptive evidence, such as delay in emptying time. Duodenal ulcers with induration present a fairly characteristic X-ray finding and are seldom missed. In a certain class of patients with high transverse stomach, the duodenal cap often fails

*Read before the Norfolk County Medical Society, October 13, 1924.

to fill well, and no opinion may be given as to its condition. In my experience, I have seen few cases which showed both a gastric and duodenal ulcer. This combination must be extremely rare. I should like to hear something on this point brought out in the discussion.

During the past few years there has been steady improvement in the technique of gastro-intestinal radiography, as well as a more highly developed acumen of interpretation. As time goes on there will be further refinements which will add to the practical value of this diagnostic procedure.

If one is interested in the advancement of X-ray diagnosis in gastro-intestinal pathology, they may look back to the work of the immortal Caldwell who "died that others might live," published in nineteen hundred and four.

In discussing the oesophagus, Caldwell, in this master work of the time, says, "The X-ray is seldom, if ever, of any value in the diagnosis of abnormal conditions of the oesophagus. The walls of this canal offer so little resistance to the rays that they cast no shadow." In discussing the abdomen, he says, "In the region below the diaphragm radiographs may be satisfactorily used for showing the lumbar vertebrae, for detecting stones in the kidneys, ureters or bladder and for detecting bullets. The stomach and intestines offer so little obstruction to the rays that they do not produce any shadows upon the plate." He remarks, further, "it has been suggested that the stomach be inflated with air, and that a little bismuth be insufflated upon its walls through an instrument such as is used by stomach specialists."

In a voluminous text of twelve hundred pages published a few years later by an author not so well known as Caldwell, we find a print of a bismuth-filled stomach which the author explains is "giving symptoms because of its fish-hook shape combined with ptosis." Yet in our present time it is quite evident that there is a glaring duodenal ulcer shown to which the author has not called attention in the explanatory note.

The distinction of being the first to administer an opaque meal for Roentgen examination of the stomach belongs to Dr. Francis H. Williams, of Boston. In 1901, he writes of his technique as practiced in 1897.

It is my opinion that an ulcer belonging in the surgical class is seldom missed by X-ray examination in competent hands. At the same time, I believe that many cases with ulcer involving the mucosa alone are missed and are permitted to advance, the patient having been given a sense of false security. Personally, I believe that a patient who has not been educated as to symptoms and who presents the classical symptom of pain and food relief should be considered as a probable ulcer case regardless of X-ray findings.

In conclusion, I would like to give you three quotations. The first is from an internist, Dr. Cabot, who, in an address before the recent meeting of the American Roentgen Ray Society in Boston, said, "In a review of my weekly clinic records I have found that the family history has had least value, and that the X-ray findings more than any other diagnostic aid, have led me to a correct diagnosis, yet I warn that the X-ray findings must not stand alone."

The second quotation is from one of my old teachers, Rudolph Matas, a surgeon, who has never written a sentence which might not be studied with profit. In an article published in September of this year, Prof. Matas writes, "But it is also certain that the benefits which have accrued from the very simplicity and rapidity of roentgenological diagnosis are not unmixed blessings. Here, as in other regions of the body which have been made translucent by roentgen rays, the tendency of the practitioner is to accept the verdict of the roentgen laboratory unconditionally, with little or no effort to correlate the findings of the laboratory with the clinical evidence, and not to question the possible fallacy of the roentgen interpretation. In this way the time honored Hippocratic habit of observation and the cultivation of the clinical sense which are the fruits of personal observation, and prolonged contact with the sick, are rapidly becoming lost arts. In this way again, the substitution of diagnostic interpretations based upon fluoroscopic images and roentgenologic films for the rational and methodical investigation of the patient's signs and symptoms, tends to dwarf the analytical and critical qualities of mind, and to blunt the keen perceptions so necessary to correct surgical judgment. It is, after all, the interpretation, and not the roentgenographic image that counts. When the roentgen picture

allows of diverse interpretations, as is often the case, the laboratory report must be subordinated to the clinical facts. It is in the abdomen that the growing tendency of the internist and surgeon, to spare their diagnostic wits and transfer their responsibility to the X-ray department, is most apparent. It is the blind acceptance of the interpretation of the roentgenologist that is responsible in a large measure for the great and increasing surgical abuses, where the fallacies of X-ray diagnosis and the liability to erroneous interpretation are greatest."

In 1895, William Conrad Roentgen appeared before the Wurzburg Physio-Medical Society and read a paper entitled "Concerning a New Kind of Ray." This paper has been described as the brightest page in the scripture of science. On January 23, 1896, the proposal of that great anatomist, Von Kolliker, that the so-called X-rays be named after their discoverer, Roentgen, met with enthusiastic response.

In a short time the German Roentgen Ray Society was a live and enthusiastic body, having recruited to its membership many of the best minds of the Empire. The annual meetings were held in Berlin. Roentgen, an honorary member of this society, because of his distaste for acclaim, was not present at any meeting. In order that a meeting of the society might be honored by Roentgen's presence, it was decided that the fourteenth annual meeting should be held at Munich where the discoverer was living in retirement. Accordingly, the meeting was held in Munich, but the great Roentgen had passed to his reward a short time before. The first day's session was given over to memorial exercises. In the principal memorial address by a roentgenologist, Haenisch, appears the third quotation: "In our enthusiasm, however, we medical men must guard as rigorously against a false one-sided over-estimate of the value of our diagnostic adjunct as against a summary subordination of it by a preconceived clinical opinion.

"An uncritical estimate of the roentgen findings, divorced from the result of clinical examination, or a reading into it of things which the roentgenogram cannot show, involve a greater risk and more severe consequences than the entire omission of the roentgen examination. The roentgenogram is always correct, but it is not always interpreted correctly; more

is demanded of it than should be. The roentgenologic demonstration of a pathologic process may fail, but to exclude such a process on this ground would be an error. In the ability to recognize its possibilities, still often narrowly limited, lies the art of the roentgenologist. A pathologic change may be shown in a roentgenogram, yet herein alone lies no proof that it is identical with the anatomical basis of the patient's complaint.

"We can thank the great benefactor of suffering humanity no better than to strive to employ rightly the instrument he has given us, and that is not always easy. Roentgenoscopy and roentgenography compose no *pons asinorum* of medical diagnosis. Medical art and diagnostic development are not decreased by it, but on the contrary, enriched. Also *nil nocere* must remain in the development of every technique, the supreme medical watchword."

THE MEDICAL PROFESSION.*

By WILLIAM E. WARREN, M. D., Williamston, N. C.

Ladies and Gentlemen. Fellow-Members of the Seaboard Medical Association of Virginia and North Carolina: I appreciate with much gratitude your kind partiality in electing me to the office of President, and especially am I grateful when I consider with what unanimity this honor was conferred upon me. I only ask now your indulgence and patience while I endeavor to perform the duties of this office. The recurrence of anniversaries, or of longer periods of time, naturally refreshes the recollections and deepens the impressions with which they are historically connected. For the first time it is our privilege and very great pleasure to meet in the city of Rocky Mount and we should congratulate ourselves in having the pleasure of meeting in a community like this, which has always had the enviable reputation of being a most generous host.

We trust you are pleased with the scientific program, and just here allow me to express publicly my personal thanks to Dr. Clarence Porter Jones for his wise council and persistent effort in our behalf. It is largely due to him that we have such an interesting program.

One year ago, at Newport News, there was delivered a presidential address which lifted the standard to such heights as to become a

*Presidential Address before the Seaboard Medical Association of Virginia and North Carolina, at Rocky Mount, N. C., December 2-4, 1924.

veritable stumbling block and rock of offense to all future aspirants in this line; and so, as this time and day demand a lowering in prices and rates, I am going to so lower the standard of presidential addresses that a wayfaring man, though a doctor, may indulge in such diversions with some hope of meeting the demands required. It is recorded in the "Holy Evangelists" at one place, that "The Church had rest." The thought has come to me, would it not be good for our Society to have a break in the procession of our annual addresses and take a rest? Certainly, gentlemen, equipped as I am, I shall not tax your minds on this occasion with a heavy scientific display, for in a large measure these annual meetings are recreational, and, further, I am not so sure but that true courtesy would demand that the scientific emanations of this body are solely prerogatives of the membership itself.

Tonight as I look upon this splendid gathering of noble men and lovely women and ask the question, "what is the object of this annual assemblage?"—the answer comes back, "for the advancement of the science of medicine." I am thrilled beyond expression, frankly, so nearly beyond expression, that I fear I cannot even under such inspiration rise to the level of my desire to speak worthily on the subject I have selected for your consideration. I realize I have the honor of addressing a great and truly representative body of a learned profession whose career began in the twilight of fable, long before the authentic history had lifted that curtain of time, a profession struggling ever onward and upward until today its influence and power for good irradiates the earth. What shall my subject be? I have considered and discarded many fascinating topics; some of them no doubt have suggested themselves to your minds. Instead, I have chosen one, at the risk of being censured as immodest, which comprehends them all. The simple truth will be sufficient to emphasize the fact that my subject is "The Medical Profession."

Medical men who meet in the forum of medical societies and engage in scientific discussions and interchange of clinical experience are thereby better equipped for the discharge of the grave and responsible duties of their high calling. Under our republican form of government, free press, freedom of speech and act in religion, the legal profession by their association in legislative bodies and in litigations have presumed the masses of the people

to become acquainted with the fundamentals of all laws and professions, knowledge of the medical profession until recent years being confined almost exclusively to its own members.

The field of scientific knowledge of the medical profession lies far out beyond the acquaintance of the great masses of the people, even of the most advanced civilization. And herein lies one of the greatest hindrances we have to encounter in our efforts toward the betterment of the general health conditions among the people.

The mutual relation of the profession and the masses brings a mutual obligation and there is an evergrowing demand for a better understanding between them. The medical profession exists not for its own sake, but for the common good of the people. The sufferings and needs of humanity called it into existence. The relation, therefore, between the medical profession and the public is a very important one. There are many things that should be and must be explained to the masses by the profession before it can do its greatest amount of good. Like all worthy professions, that of medicine has its peculiar code of ethics, and the responsible physician who is worthy of public confidence and patronage bases his career as a clinician upon what the profession believes to be a moral obligation to humanity, which it seeks to serve. The doctor in no small way is a public man, and therefore a public servant. As guardian of the health and lives of the people, it is but just that the profession stand for everything that is right and uplifting to the community. I believe the true profession stands for the highest ideals of life, and the truest moral standards among the people.

The ethical demands of the public upon our profession are fully justified. The close vital contact of the physician with the deepest and most sacred relation of life, a contact of which he is the master in charge, lays upon him the greatest moral obligation to the welfare of the race at large. To him is committed the most sacred secrets of private life, both of the individual and the home. Indeed, his close and vital contact with the masses in the greatest facts of life render him an important factor in the common welfare of our civilization. The humbug and the quack are very much in evidence everywhere, and the serious fact is that they are nowhere so well protected and so well enabled to do their mischievous work as they are under the cover of a profession that legiti-

mately assumes to care for the health and welfare of the people. Here, because of the lack of correct information and the helplessness of the masses, is found the paradise of the quack, feeding like a vampire upon the lives of the suffering and the afflicted.

We must in all serious honesty guard with zealous care the sacred responsibility committed to our hands and, by continued search into the realm of sacred truth and by constant dissemination of scientific principles, drive the false pretender and quack, the parasitic fads of the day, from the field, and deliver suffering humanity from their ravages.

The profession has been subject to all kinds of indignities by the charlatan and patent medicine pretenders. These vampires that have sucked the blood of suffering humanity have grown arrogant and assumed for themselves all the virtues and wisdom of the age. Too often they arouse the passion of the ignorant and blind them to their real condition of health, leading them away from their only hope of recovery. However pious may be their pretensions, they are but murderers of confiding and helpless people, and the government should have the moral courage not to afford them protection of the law. The people who encourage them commit a crime against the race. The people who would enter the profession of medicine need to be impressed more fully with the importance and sacredness of the profession that enters so vitally into the common health and welfare of the country. Furthermore, the public should see to it that none but the high grade, moral, well-educated, with the highest ideals, enter into the profession of medicine. There is a righteous demand for wise and rigid legislation making the examination more rigid than they are now.

There should be uniformity of action among all the States. The higher the standard and the more rigid the demands made by the laws of the country, the better the protection of the people, and the worthier will be the men who shall constitute the profession. No practitioner worthy of the privilege of a standing in the profession will join the calamity howl from the ranks of false pretenders who extract their money at the price of blood when such necessary, such sadly needed, and such long delayed legislation is attempted. The protection of the profession by legislation is even a greater protection to the people. I venture to assume that in a very few years the people

will demand such legislation as will permit none but honest, moral, and well-equipped doctors to practice the healing art. And in case of immorality and dishonorable conduct, they will demand the legislation that will disqualify the offender and revoke the license that gave him recognition in the profession.

There is no creature with any pretension of respectability so low in the estimation of any honorable and honest man as the man who traffics in the ills and afflictions of a fellow-man, or who withholds any remedy or agent (from the world) that might alleviate suffering humanity or save human life.

Under the advancement of enlightenment of the masses in matters of medical science, this long tolerated abuse—quackery—will in the future disappear, just as the cruel customs of society are disappearing before the advancement of the high civilization and enlightenment of today. There is advancement all along the line, but there remains much to be accomplished in bringing about the full co-operation and confidence that must exist between the profession and the people.

Too often it is the case that the very ones most sadly imposed upon join hands with the quack and help him fight against the advancement that true medical science is striving to accomplish for the people.

No profession has made such rapid progress within the last century as that of medicine. We are not discouraged when we find that it has been a constant battle in every country and in every age. The advancing light of truth dispels the darkness.

"Truth on which depends our main concern
That 'tis our shame and misery not to learn
Shine by the side of every path we tread
With such a lustre that he who runs may read."

When we come to the full grown day of scientific knowledge and the public more fully understands the science of medicine and the healing art, and superstition is buried in oblivion, then will the quack and the fake and the numerous fads which infest the land with their hurtful influence, take their flight. Then reason and common sense will reign supreme. With the dawning of the day of true scientific knowledge and the application of real scientific methods, there comes a charming story of progress, as step by step the ladder is climbed and medical science reaches the heights of the present day achievements so long sought for and its many victories.

Standing as we do today in the dawn of a new century and the most advanced light in the scientific world that humanity has ever enjoyed, one fact is evident: the century marks a growing disposition on the part of the medical world to prevent rather than to cure. The biologist and the other laboratory workers are pointing the causes and modes of transmission of disease and the medical profession is to look to the prevention of these causes. This phase of our work is bringing the physicians more and more in contact with each other and there is becoming a co-operative condition. Preventive medicine is the order of the day. A higher standard of enlightenment of the masses must result from it. The rise of the germ theory, which began with the research of Haller and others, and which theory has been demonstrated to the fullest satisfaction of the most exacting skeptics, has worked an epoch in the knowledge and treatment of disease. On Pasteur's demonstration in fermentation and putrefaction our present knowledge of germs is based; to immortal Jenner we owe the prevention of smallpox by vaccination; to Lord Lister, antiseptic surgery; to Von Behring, anti-toxin for diphtheria, which alone has saved countless numbers of lives. From him the serum theory sprung, which has contributed largely to the amelioration of diseases and the preservation of lives. The genius of Nott and Walter Reed solved the problem of yellow fever, which scourge cost the Southern States countless lives. The bubonic plague which in the middle ages practically swept all before it, is tamed and beautifully held in check by knowledge of its cause of transmission. The great "white plague," while yet unconquered, has lost much of its terror since it is now well known that seventy to eighty per cent can be cured if the cases are taken in the early stages of the disease. The handling of typhoid fever is much easier since we know better how to prevent it, and in this day and time if anyone should be so unfortunate as to have typhoid fever it is absolutely his own fault in neglecting to take the anti-typhoid vaccine treatment which is given to each individual *gratis*. The same thing is true as to scarlet fever, as a vaccine has been discovered to prevent that disease and no doubt this will be free to the public in a very short time. For these things we are very thankful, and to those who have so abundantly contributed to the unveiling of

these truths, we humbly pay our most sacred reverence.

While we understand the nature of tuberculosis in a small way, the disease is yet unconquered. Measles and whooping cough are thorns in the scientific world; they rage unchecked, reaping a large harvest each year. Cancer! how shall we ever conquer it? There are problems regarding the internal secretions which will furnish food for our most brilliant minds. We have not explored it all, and there remains much to conquer in the fields where our greatest explorations are to be made. We are now just ready to achieve our greatest victories. The greatest field lies out before us almost as yet unexplored. We have but to see it and learn its boundaries from afar. Let us, therefore, move forward with each effort to better our profession, and give suffering humanity in some way something real, living lives of worthy emulation.

Again, I see a profession that is progressive as well as conservative. Consider for a moment the other learned professions. The lawyer and jurist look backward for precedent on which to base today's decision. The minister's work is based on principles and needs that are essentially the same from age to age and no profane hand can alter or add to what has been revealed. But the physician regards precedent as valuable only so long as new facts and new experiments do not show a better way. While the moral and ethical standard must ever remain the same, the medical mind is always open to receive further knowledge and is alert to discuss new truths. And, again, I see a profession rich in its beneficent results especially during the last century. Another has said that "you may search the scriptures of human achievements and you cannot find anything to equal in beneficence the introduction of anesthesia, asepsis and sanitation with all that includes. Diseases familiar to our fathers and grandfathers are fast disappearing from the face of the earth and modern medical measures have alleviated the pains, lessened the sorrows and lengthened the lives of millions." And the end is not yet. Discovery after discovery follows each other so rapidly that we know not what to expect next. This is the profession of which you are a component part; this is the work in which you are engaged. Again, I see as a conspicuous feature of the medical profession, charity—charity which is neither puffed up nor vaunts itself, that charity

which is kind and covereth a multitude of sins. Over every highway, road or path, whether trodden by the humble country doctor or the most learned of the land, is written charity. Yes, even on the breast of every worthy physician it is engraved, and by this token he gains entrance into sacred recesses where angels fear to tread. I bow with reverential deference to those who are members of the sacred profession of the ministry, who devote their lives to the good of others. But even they are not admitted into the innermost lives of the people to the extent that the physician is. To the physician is laid bare the body with its infirmities, as well as its vigor, the soul with its vices as well as its virtues, the heart with its sorrows as well as its joys, the mind with its disappointments as well as its hopes. To him as to no other is lifted the veil that discloses the thoughts and passions that make life bitter or sweet. To no other is given the same power to mould the character, guide the destiny, and work the road to peace and happiness.

This medley, with or without your indulgence, must include a short survey of the times and the customs which exist today. Premillennium signs are in evidence on all sides. First, our government, so long stirred by the hands of men, has reached the hour when that burden must be shared by the hands and minds of women henceforth. This is a most important radical change, and the future must prove the wisdom of it. This is a case where the power behind the throne has become the power upon the throne. Will she any the less, when she comes into the full realization of what suffrage has put into her hands, cease to be the queen and guiding spirit of the homes of the land? "Lord, God of Hosts, be with us yet, be with us yet." Kipling says, "The female of the species is more deadly than the male." This is submitted without argument. However, I believe I can unhesitatingly assert that the history and events of all times and of all countries have proven that wherever her will, influence, and presence have been invoked, there has come uplift and better days.

Ere I close this rapt discourse, I want to bring to your perspective the picture of what I have always conceived to be the highest of man's exploits here below. I allude to the true heart-and-head enlisted, old-time and new-time family doctor, who in season, and out of season, has spent his life, or is spending his life, in the hours and by the bedside of those or-

dained to suffer. Our surgeons have wrought with marvelous skill and made the names of American surgery the envy of the world. But I am inclined to the belief that too many of our young men are unduly led away by the glamor attached to the achievements of the knife, and view the daily routine of the practice of medicine as dull and of secondary importance, unmindful of the fact that the greatest study ever presented to the real student of medicine is pathology, the knowledge of disease. Coupled with the latter is a consideration of physiology, the knowledge of the processes of the body in health, as well as a correct interpretation of the so-called symptoms in evidence when the harmony of health processes is disturbed by disease. A study of the physiological action of drugs affords an armamentarium to combat the inroads of disease. Upon these studies hang all the laws and the prophets which govern a medical man. Surgeons have glorified American medicine, and we shall ever have them with us. But the world will ever cherish the picture and glorify and magnify medicine as illustrated by men of the type of Wm. McClure, daring the elements and carrying relief to the suffering by day and night, to the hovel as well as to the palace, preferably on horseback with well-worn saddle-bags—a picture which should never fade from human memory and will incarnate both the horse and the rider forever.

With no hope of enlightening you, may I have the consciousness in a small way of having entertained you. Of one thing, however, I am certain, and that is that I have, by these presents, lowered the standard of presidential addresses sufficiently for all future time. It has been my aim not to seem merely clever, for one has said that, "cleverness, anyhow, is only the level of mediocrity today."

Again, I wish to thank you most cordially and profoundly. I shall ever cherish this, the supreme achievement of my life.

MASSIVE EXCISION OF SUBCUTANEOUS ABDOMINAL FAT.

An Analytical Review of the Literature.

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The profession is not sufficiently acquainted with the benefits, cosmetic and physical, that can be secured by the operative removal of large masses of subcutaneous abdominal fat.

Fatty pendulous abdominal walls have been looked upon as natural, as irremediable and, therefore, have received but very little study. It has, however, been repeatedly and amply demonstrated that superfluous masses of subcutaneous abdominal fat can, with safety and with advantage to the patient, be removed by operation.

Fat in excess may be deposited either in the subcutaneous cellular tissue or in the muscular and fascial layers of the abdominal wall, or may be indifferently distributed in all the tissues intervening between the skin and peritoneum. The abdominal wall may contain a layer of fat from three to four and one-half inches thick (4,5,20), even six inches thick (25). Jolly classifies abdominal fat accumulations as follows:

(a) The pendulous abdomen presenting changes in the muscular and fascial tissues of the abdominal wall.

(b) Subcutaneous fat accumulations not associated with much weakening or impairment of the abdominal wall.

(c) The combination of (a) and (b).

The essential anatomic characteristic of the morbid entity herein discussed is the pathological accumulation of fat in the subcutaneous cellular tissue of the abdominal wall. In all these cases the abdomen shows a symmetric, at times an enormous (9), increase in volume. The fat excess is present mainly in the lower, anterior and lateral infra-umbilical portions of the abdominal wall. This superfluous local fat deposit is usually, though not always, a part of general obesity (9,13). "All these patients were enormously fat" (17). "Patient on admission to hospital weighed 464 pounds. When on her feet, the abdomen hung down to her knees" (6). It may or may not co-exist with other, related or non-related, pathological changes in the abdominal cavity, contents or walls.

As many cases are reported with but few details, attempts to secure adequate and accurate data meet difficulties. A diligent search of the English, French and German literature* yielded seventy-seven operatively treated cases serviceable for analytical study. To these we have added eleven personal cases. We did not use the forty cases of Babcock (1) one hundred and three cases of Lathrop (14), and others that are too briefly reported.

All the patients were adults. In many cases the exact age is not reported. The youngest, at time of operation, was twenty-five years old (27); the oldest were fifty-six (21), fifty-seven (18) and fifty-nine years (31). In the other cases, the age is stated as follows:

26 to 35 years	9 cases
36 to 45 years	18 cases
46 to 55 years	22 cases

Excessive localization of fat in the abdominal wall is infrequent in men. In our series, there were six males (7,14,23,27,31) and eighty-two females. Flabby and sagging abdominal walls overloaded with fat are met more commonly in individuals who since early life have been corpulent. The most pronounced forms, however, are seen in multiparae, thirty-three cases occurring in multiparae, one in an elevenpara (21), one in a tenpara (12), etc. It also occurs in nulliparae (9,10,16,25,26).

Lack of space does not permit the discussion of the many complicating conditions that aggravate the discomfort and disability provoked by pendulous abdominal walls.

Redundant fatty abdominal walls, if uncomplicated, give few symptoms. These symptoms, however, both subjective and objective, are characteristic, are conclusive. All the objective symptoms are demonstrable either to inspection or by palpation. At first, pain and disability are slight. The condition progressing, they and the other associated symptoms increase in severity. "Not much pain at first; the swelling of the abdomen gradually increased as did also the shortness of breath and the great pain in the abdomen, in front as well as in the back" (4).

Pain is influenced by posture and is more marked with the patient in the erect posture. The pain is increased by all forms of exercise. It is lessened and in some cases disappears with rest in the recumbent posture. It often has the nature of a painful, dragging sensation, and is lumbar, inguinal and hypogastric in location. These patients are inactive (28): they become averse to all effort, there results a vicious circle for the increased inactivity leads to increase of the local and general adiposity. In women who near the menopause take on adipose, there not uncommonly forms a huge, pendulous roll of fat across the lower abdomen, below the umbilicus. This pendent fat-mass creates a crease, often madid and eczematous, located just above the symphysis pubis (13). In most patients, the continuous contact

*All the publications to be found at the John Crerar Library, Chicago, Ill.

and friction of the inferior cutaneous surface of this fat apron and the underlying regions determine an erythema, an eczema, an excoriation, an elephantiasis (9) of the skin of lower abdomen, of the inguinal folds and in some cases of the upper part of thighs. Some patients present two distinct creases. All the subcutaneous tissues of the hypogastric and iliac regions take part in the formation of these folds which extend transversely from one lumbo-iliac region to the other and which vary in length and thickness. In the recumbent posture, the flabby fatty mass gravitates to either side and sags over the iliac spines and crests (25). The prolapsed tissues show impaired tonicity, impaired resistance. Nearly all the patients are obese: two hundred twenty-seven pounds (24), two hundred forty pounds (4), two hundred eighty-five pounds (13), three hundred fifteen pounds (Gibbon) (14).

This excessive fat-deposit hangs apron-like over the external genitalia and the upper portion of the thighs (12), may overlap the upper two-thirds of the thighs (28). "In the standing position, the abdomen hung down in a fold which extended to within two inches of the patella" (25). "The abdominal wall reached below the knees when the patient was standing" (14).

Other subjective symptoms and objective signs are enumerated in conjunction with indications for operation.

Pendulous fatty abdomen must be differentiated from diastasis of the recti abdominalis, with which it may be associated. If it be suspected that the recti abdominalis muscles are abnormally separated, the examination is best conducted with the patient in the recumbent posture. The patient reclining is told to elevate the head as high up as possible without the help of the arms. If the diagnosis be positive, this maneuver separates the inner borders of the two recti muscles from one another, causes a greater or lesser prolapse of the intestine through the gap and enables the examining hand easily to depress the superficial abdominal coverings into the abdominal cavity.

The careful clinician will not overlook or misdiagnose hernias (umbilical, inguinal, ventral, etc.) They frequently co-exist with pendulous abdomen. Their anatomical location and clinical characteristics are suggestive. Hernias give an impulse on coughing, often present a volume larger at times than at others; if intestinal, they give a tympanitic note on

percussion. If no hernia be present, if there be no abnormal separation of the recti muscles, the fat mass can be easily raised from, and made to glide somewhat upon, the underlying resistant muscular wall.

In properly selected cases, large masses of fat can be removed from flabby, sagging, fatty abdominal walls when the excessive fat deposit—

1. Causes great annoyance and discomfort:
 - a. Pain (11,16).
 - b. Backache (24).
 - c. Dyspnoea on moderate exertion, ascending stairs, walking, bending (27).
 - d. Distressing irritation (3), inflammation of the skin; erythema (7); intertrigo (22); eczema (14); chronic inguinal excoriation (15).
 - e. Pouch-like overhanging of a cumbersome, useless, fatty apron in front of the upper portion of the thighs (6,9,12).
 - f. Undue fatigue (21) and painful dragging sensation from the weight of the mass (19).
2. Determines manifest disability:
 - a. Interference with locomotion (27).
 - b. Interference with marital relations (7).
 - c. Interference with the exercise of one's calling (9).
 "Patient said that she was becoming a semi-invalid and insisted that she be relieved" (6).
3. Constitutes a physical handicap (13):
 - a. Inability to assume comfortably, and gracefully the erect posture; waddling gait (13).
 - b. Inability to attend to the toilet of the lower part of the body (13, 22,28).
4. Becomes an unbearable social handicap; patient is unwieldy, unsightly, incapacitated for recreation, not sick, not well (2,13). "The dragging sensation caused by the pendulous abdomen was so great that she was forced to keep off her feet as much as possible." (6).

Resection of large masses of subcutaneous abdominal fat is also justifiable and most serviceable:

1. In the obese, to lessen the tendency to hernia formation.
2. In operating for hernia in obese indivi-

duals, so as to obtain better exposure of hernial rings and hernial regions.

3. As an associated supplementary and terminal step to many abdominal operations: Hysterectomy (Marvel) (20); ovariectomy (9); cholecystotomy and cholecystectomy (31); appendectomy (24); uterine prolapse and retroflexio uteri (21). "In association with lipectomy, we have frequently drained or removed the gall-bladder, the appendix or have performed other abdominal or pelvic operations" (1).

4. As a preliminary step to many abdominal operations so as to facilitate intra-abdominal work (20); a small fibroid in an atrophic uterus, a retro-cecal appendix, a small gall-bladder tucked away in a deep fossa with a stone in the cystic duct, or, still worse, a stone in the common duct, etc.

5. In cases in which the careful fitting and wearing of an orthopedic apparatus is not otherwise feasible. "Lipectomy was done to facilitate the fitting and wearing of an orthopedic apparatus for the support of the strained sacro-iliac joints" (16).

The benefits secured from massive resection of superfluous subcutaneous abdominal fat are so evident, so manifest, and the dangers attending the operation are so negligible that even in the absence of any other pathological process calling for an abdominal operation, the surgeon should not hesitate to advise and to urge the excision of these useless, troublesome and cumbersome fat accumulations.

The risks of simple lipectomy, either performed alone or in conjunction with other operative procedures, are far outweighed by its beneficent results. It has been successfully performed at the same sitting with operations for the cure of hernia (umbilical, inguinal, ventral, epigastric, incisional), appendiceal, gall-bladder and uterine disease, etc. In the eighty-eight cases furnishing the subject-matter of this paper, only two deaths are recorded. One patient, operated upon for umbilical hernia and pendulous abdomen, died from embolism (29). MacLean's (16) patient, operated on for pendulous abdomen and incisional hernia, died from peritonitis on the fifth post-operative day.

Lathrop (14) operated one hundred and three cases of umbilical hernia. In fifty-seven of these, he removed some excess fat. In the remaining forty-six cases, he performed a regular lipectomy. He reports one death which

occurred twenty-two days after operation. The patient, a man weighing 325 pounds, from whom twenty-two pounds of fat had been removed, did well for two weeks, then his kidneys began to fail and he gradually succumbed.

In twenty-four cases of our series, a simple lipectomy was performed (2,7,12,13,14,16,21,22,23,25,26,27,31). In simple lipectomy, the operative procedure is limited to the massive retrenchment of redundant subcutaneous fat and overlying skin. The incisions extend through the skin and fat, down to the fascia and not beyond.

In the remaining sixty-four cases, the lipectomy either preceded or followed, but always at the same sitting, operative steps for the cure of:

- a. An umbilical hernia (2,4,5,6,10,13,14,16,17,18,21,28,29);
- b. An epigastric hernia (3,31);
- In a and b, the overlapping of flaps leads to local elevation or ridge formation. This need not disturb the surgeon. The fortifying of the abdominal wall has been accomplished.
- c. A large ovarian cyst and umbilical hernia two cases (9,31);
- d. A ventral hernia (Gibbon) (14);
- e. An incisional hernia (15,24);
- f. Uterine disease (uterine fibroid) (Marvel) (20);
- g. Uterine prolapse (21);
- h. Appendicitis (24,31);
- i. Gall-bladder disease, cholecystostomy or cholecystectomy (2,31);
- j. Diastasis of the recti abdominales muscles (15).

Lipectomy has also been performed:

- a. To facilitate intra-abdominal work, by making intra-abdominal organs more accessible;
- b. To assure a better adjustment of orthopedic appliances (16).

Different operative procedures are employed for the cure of the condition under consideration, each operator being partial to the method which has given him the most satisfactory results. Whatever technique be used, and it must always be adapted to the case at hand, it is all important, all essential that the integrity of the abdominal muscles, fasciae and peritoneal fat be fully respected. Only the skin and fatty mass immediately subjacent to it and directly in front of the fascia are to be removed.

The operation which we perform and recommend is entirely different from that performed

by Creveling and others who, to restore the abdomen to normal size and contour, carry their incisions through the entire thickness of the abdominal wall into the peritoneal cavity. Bear in mind that we are not considering here prolapsus of all the abdominal coverings. We are only discussing the removal of excessive subcutaneous fat accumulations.

In the reported cases the amount of fat removed varies; and here it is well to note that many operators state with emphasis that they could, with much additional benefit to the patient, have removed more fat than they actually did. The completeness of the fat-removal is a measure of the freedom from fat thereafter of the part operated. Enough fat should be removed to completely eliminate soreness from chafing. It has been our practice to remove the mass in one or two pieces. Concerning the quantity of excised fat, different clinicians express themselves as follows: "Several pounds of fat and skin" (4). "From one-half to fourteen pounds" (1). "The mass was so long that as I held one end up high in my hands at breast level, the other end dragged on the floor and it was so heavy that it was difficult to keep my hold" (13). "The specimen removed was one yard and three inches long, one and one-half feet wide, three inches thick at the edge and weighed seventeen pounds" (5). "Removed a wedge of fat weighing thirty-two pounds" (Clark) (14). "The flap of belly-wall fat removed together with the hernial contents weighed forty pounds" (10).

After having performed several lipectomies, the surgeon experiences little difficulty in deciding how much fat it is judicious to remove. The removal of one large wedge-shaped fat-block, occasionally two, rarely three, usually suffices. As the patient lies in the recumbent position, the fatty mass gravitates to the sides and can be picked up, can be lifted up as a great ridge or fold lying across the abdomen. The operator grasping this mass in the center, pulls it up and away from the body and circumscribes it by two incisions, one passing a little above and the other a little below the lines of deflection.

It is preferable that the incisions be clean-cut, made with one or several long sweeps of a broad-blade scalpel or short amputation knife. The length of the incisions has little appreciable influence on the outcome of the operation. "The incisions were twenty-one inches long" (17). "Incision was twenty-seven inches

in length; there were four hundred square inches of raw surface" (15). "After being sutured, the incision measured twenty-two inches in length from flank to flank" (4). "When stitches were removed, the abdominal incision had contracted until it measured only twenty-seven inches from side to side" (6). Patterning by slicing is bad practice. Small hacking cuts are to be condemned. The smoother the fat surface, the better the approximation. Two initial incisions usually fulfill all requirements. These two incisions converge into one upon the fascial layer, thus no undermined surfaces, no pouches for the accumulation of wound secretions are left. Sufficient skin must be left for approximation. Let there be no undermining of the wound edges.

In the reported cases, dissimilar incisions differing in type, in length, and in location were employed. Most operators used two transverse elliptical incisions joined at both ends (5,6,10,14,16,17, etc.) In some cases, the upper incision was supra-umbilical; in most cases, both incisions were made below the umbilicus. The incisions, starting at either the anterior, or middle, or posterior axillary line of one side, cross the abdomen and terminate at a corresponding point on the opposite side.

Castle (5) began his upper incision two inches lateral to the spinous process of the lumbar vertebra and carried it above the umbilicus, across the abdomen, to an analogous point on the opposite side. The ends of this incision were joined by a second transverse incision crossing the abdominal wall above the pubes. These two incisions outlined an ellipse. Cullen (6) circumscribed a large transverse elliptical area which, after removal, measured thirty-six inches from side to side and nineteen inches from above downward. Shallenberger (24), by means of a double infra-umbilical incision going from flank to flank, embraced an ellipsoid area of skin 45 cm. long and 15 cm. at its widest part.

In selecting incisions, we are guided as to length, type and location by various factors: such as, the existence or absence of complicating conditions, the nature of the other indicated operative steps, the amount of fat to be removed, the patient's general condition, etc. For the excision of large wedge-shaped fat-blocks, we have adopted and recommend two transverse elliptical incisions, beginning well over on one side and extending to corresponding points on the opposite side. These two in-

cisions converge toward the fascial layer. Many other operators follow the same practice. If an abdominal section is to be performed at the same sitting, the fat is first removed by means of a double transverse incision. This having been done, one proceeds to enter the abdominal cavity by a vertical incision through the rest of the abdominal wall. Bullitt (4) completed his operation for umbilical hernia; then prolonged, in both directions and to both flanks, the horizontal incision which he had made. A second transverse incision joining the ends of the first incision was then made; at its mid-point, it was about seven inches below the first.

Transverse incisions have the disadvantage of increasing the already large waist measure and of leaving at each end of the wound an unsightly projection. To avoid these, Babcock (1) removed a small vertical ellipse of skin near each end of the transverse incisions. If transverse incisions be used, the approximation and the apposition of the flaps is effected more easily, the liability to post-operative separation of the wound-edges is minimal, primary union (4,9,10,20,22,28) is frequent, delayed healing is rare (16) and long-delayed cicatrization is very uncommon.

Longitudinal incisions found favor with few clinicians. Frist (9) made two longitudinal incisions, 70 cm. in length, outlining an ellipse that extended from about a hand's breadth below the xyphoid cartilage to a hand's breadth above the symphysis. At their point of maximal separation from each other, each of these two incisions was fourteen centimeters external to the corresponding mammillary line. The wound edges having separated in a few places, healing was delayed. Spaulding (25) made an elliptical incision on each side of the median line. Each incision extended from just below the breast to the center of Poupart's ligament. He removed the integument and fat six inches thick down to the sheath of the abdominal muscles.

In some cases, we made two elliptical vertical incisions at each end of the transverse incisions and were thereby enabled to remove two additional wedge-shaped fat-blocks. Babcock (1) recommends removal of a vertical ellipse of skin and a vertical line of closure. He alters the shape of the ellipse so as to best contour the waist and upper pelvis. In order to remove a large amount of subcutaneous fat, he widely undercuts the skin. This practice is

avoided and condemned by most operators. Schepelmann (21) uses a "lyraform" incision. I have had no experience with it.

Though multiple incisions, patterning by slicing, hacking cuts, undermining of wound edges, excision of vertical fat-blocks, are not conducive to the most aesthetic and satisfactory results, they have been practiced by some. For instance, Ballard removed fat and skin from above downward as well as from side to side. To quote his own words: "I removed an elliptiform piece of tissue down to the fascia extending from within three inches of the symphysis pubis and eight inches at its greatest width. I, then, removed two large V-shaped strips transversely from about the center of the perpendicular incisions."

Fat is a tissue of low vitality and special care must be taken that there be little or no accumulation of serous or sero-sanguineous fluid between or beneath the flaps. Retained wound secretions retard healing, invite infection. A drain is inserted at either end of the wound; if the wound be long, a drain may also be inserted at its center. Closure is effected by approximation sutures of silkworm-gut. For the exact apposition of the wound edges, we use linen. In these cases, I frequently advise the application of hot boric acid compresses to the operative wound for from two to three days; these fomentations are to be renewed every four hours. The drains are removed as soon as the discharge warrants it and the patient is kept in bed for about fifteen days. The result of the closure should be a smooth abdomen with a linear scar (7,13,27) and without any hanging folds (19). "The pendulous appearance being entirely removed and replaced by a simple large pronounced ridge" (4). Some patients during the first few post-operative days complain of abdominal tightness, of abdominal constriction (18). It calls for no special treatment.

SUMMARY

In suitably selected cases, the operative removal from the abdominal wall of large wedge-shaped masses of subcutaneous fat has the following advantages:

1. It is a safe and invariably beneficial surgical procedure. It has always been performed under general surgical anesthesia; never under local or spinal anesthesia.
2. It is always devoid of immediate or remote dangers to the patient; though the wound

be extensive, the hemorrhage is moderate and healing is good.

3. It is simple of execution and, if unassociated with another operative procedure, the technique is easy and the performance of the operation does not consume much time. It is all important that the incisions be carried to but not beyond the fascia.

4. It may be the only operation indicated and performed in the case at hand.

5. It is, at times, called for as a preliminary operative step to facilitate intra-abdominal work and to give better access to intra-abdominal organs.

6. It is not infrequently employed in conjunction with other operations. The operator retrenches an unwieldy, useless, pendent mass of subcutaneous abdominal fat and at the same sitting brings relief to, or corrects, co-existing pathological abdominal conditions.

7. It eliminates a physical handicap, effects a marked improvement in the patient's appearance and general well-being and procures complete relief from an unsightly, painful and disabling deformity (23).

8. It gives permanent results (17), if post-operative instructions regarding diet and exercise are followed. Adipose tissue, when excised, never fully regenerates.

9. It secures the following benefits:

a. Diminution in weight. "At time of patient's departure from the hospital, she weighed seventy-five pounds less than at time of entrance" (5). On discharge, the loss in weight was about ninety-three pounds (9).

b. Freedom from discomfort, local and general, and from disability incident to cumbersome, burdensome, pendulous fatty abdomen (12,22).

c. Improvement in the patient's general appearance, the hippopotomal abdominal wall being converted into a straight front. Improvement in pose: body is no longer awkwardly balanced and gait ceases to be waddling. Patient is enabled to resume his or her occupation.

d. Patient, after its performance, can occupy a more normal, more natural and more useful relation to society.

e. The patient can be more active, can give better personal attention to the body, can give his or her work the necessary attention and necessary application (7).

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TRAUMATIC RUPTURE OF THE INTESTINE—REPORT OF CASE.

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The case which I report, while unusual, is by no means unique. The patient, T. E. B., Jr., was a well-developed normal boy of 12 who had never had any serious illness. On April 14, 1924, he was playing in the school-yard at recess, about 1 o'clock, when he was injured. While running he collided with another boy. The other boy's knee struck him

in the scrotum and he fell to the ground unconscious. He remembers no other details of the accident. He was carried into the schoolhouse, where he regained consciousness in a few minutes, but was unable to get up and join his class.

At 3 o'clock he was taken home in the school truck, and was seen by his doctor at 4 P. M. He then had normal temperature and pulse, no nausea or vomiting, no abdominal rigidity or localized tenderness, although he complained of severe pain in the lower abdomen. He was given morphine. Two hours later his pain was still intense; he had vomited once, and there was tenderness in the lower abdomen with slight rigidity. His temperature, pulse and respiration were still normal.

It was decided to bring him to the hospital and they started in an automobile at 9 P. M., reaching the hospital just before 3 o'clock the next morning, after a trip of about eighty miles.

Examination elicited these facts: Temperature $100\frac{1}{5}^{\circ}$; pulse 96, respiration 22. He was fully conscious; his expression was good; his eyes were normal; his reflexes were normal, and there was no bruise or abrasion on his body. The scrotum and its contents were normal. The abdomen was moderately distended and was rigid throughout, but especially in the lower half. Tenderness was present over both lower quadrants, being particularly marked just internal to McBurney's point. Rectal examination elicited tenderness but no masses. Urinalysis was practically normal. Blood count showed 20,800 white cells, with ninety-three per cent polys.

An exact diagnosis seemed impossible but an exploratory operation was urged, with a probable diagnosis of some visceral injury, or possibly an unusually fulminating type of appendicitis. A lower right rectus incision revealed the peritoneal cavity extensively soiled with small bowel contents. All loops of the bowel were intensely congested and covered with flakes of lymph. The ileum, three feet from its termination, was torn completely across transversely; the two sections being held together only by the mesenteric attachment. Two inches above this tear there was a perforation of the bowel of the diameter of a lead pencil. The appendix was congested and covered with plastic lymph, but this was con-

sidered to be secondary to the general peritonitis.

The appendix was not removed. Six inches of the ileum was resected and an end-to-end anastomosis done. One Peple and one cigarette drain were inserted into the pelvis. He was badly shocked at the conclusion of the operation.

Post-operative course was stormy. Several days after recovery from the primary shock, there was a partial intestinal obstruction, relieved by removing the drains. Three weeks after operation symptoms of a right lumbar abscess appeared, but pus was not obtained until eleven days later. An abscess containing a pint was opened in the right flank and the cavity rapidly healed. There had been extensive infection and sloughing in the abdominal wound. Secondary suture of this healed cleanly and gave a fairly good immediate result. Further convalescence was uninterrupted and he left the hospital on June 12th after a stay of two months.

Examination on October 10, 1924, showed that he had regained his weight and strength, but there was a wide fascial defect in the abdominal wall, with considerable bulging. Perhaps something may be done to improve this later on.

The points prompting me to report this case are:

First: Its comparative rarity. Many surgeons have had one or more cases of traumatic intestinal rupture, but few of them seem to have been reported.

Second: The complete absence of any mark on the surface of the body that might indicate a serious internal injury.

Third: Recovery from operation undertaken as late as fifteen hours after injury. Each hour elapsing between the receipt of such an injury and its operative relief increases proportionately the risk to the patient.

THE MANAGEMENT OF PREGNANCY.*

By C. P. OBENSCHAIN, M. D., New Hope, Va.

It is well for every practitioner of medicine to have a routine method of procedure when he is engaged to attend a woman in confinement. It is recognized by all that every case cannot be handled alike, but each patient has so much in common with the average case that the physician's education to certain fixed rules

*Read before the Augusta County Medical Society.

is to his advantage, and is well for the patient. The method can be varied to suit the peculiarities of any individual.

The ability of a physician is largely gauged in a community by his degree of success in the management of pregnancy and confinement. This is also a branch of medicine for the general practitioner not likely to be invaded by any quack or cult, pregnancy being no fictitious imagination of the woman in question, but a physiological process which can easily become pathological.

To save space, the various duties of the general practitioner are divided into heads, according to the advice of the professors at "our Alma Mater," from the advice of able obstetricians, and from experience:

Education: The physician, at all times an educator, must let the public know that during gestation a certain degree of professional attention is necessary. At times, many disorders and complications are likely to arise, and the woman's welfare and that of her future offspring depend in no small way upon the watchful care of the medical adviser.

Diet: As a rule, there is some disturbance of digestion and loss of appetite during the second and third months. In the diet, the preference of the patient may be largely considered. The irritability, caused by the increased absorption to meet the increased demand, may be combated in many ways; the best method in the hands of the writer is, during this period, to give food in bed before arising in the morning and between meals. Most foods, animal, vegetable, or fruit, which are easily digested are suitable. At times it becomes necessary to regulate the diet in order to save the kidneys, or to control in some measure the size of the foetus. In cases of excessive digestive disturbance, it has been found that the vomiting can best be controlled by giving before breakfast a teaspoonful of two per cent cocaine hydrochloride solution with five grains of cerium oxalate, this being decreased or discarded as soon as possible. The more modern duodenal tube has been used once with good results. Rectal alimentation has given no results. The bowels should be evacuated once each day, and if this cannot be regulated by a diet rich in fruits and fresh vegetables, it becomes necessary to resort to drugs. The salines and mineral waters give the best results.

Exercise: Moderate exercise is good for the pregnant woman. Automobile rides, walking, and doing house-work are suggested. However, rough roads, heavy lifting or any muscular strain and fatigue must be avoided. There must be good ventilation at all times. It is the experience of obstetricians that the woman who does moderate or even heavy work has the easiest delivery.

Drugs: All cases, as far as possible, should be managed by hygienic rules without the aid of drugs, which are mentioned here only to be condemned, with the exception, of course, in the abnormal cases.

Clothing: All clothing should be suspended from the shoulders with no pressure on abdomen or chest. If the abdominal walls are lax, a proper lifting belt is indicated.

Care of Skin: Much relief can be given the excretory organs by bathing regularly.

Breasts: The breasts and nipples must be prepared for lactation and nursing. Retracted or insufficient nipples must be pulled out by patient using thumb and forefinger. Toughening of nipples is best done before confinement by using alcohol daily and massaging with cocoa-butter. The care of the breasts is especially important in primipara.

Sexual Relations: While not harmful to some, it is with others, especially to those who have previously aborted. The pregnant woman should be advised against the possibility of infectious diseases. Sexual life is best prohibited during the last months of pregnancy.

Kidneys: The care of the kidneys and the watchfulness of troubles which the kidneys foretell is the most important duty of the woman's medical adviser. The woman should be advised in a normal case to send a sample of urine at least once each month, giving the average day's total. More attention must be given where this urine examination shows abnormality, and measures instituted to combat the threatened toxæmia.

Psychology: All of this care and advice is useless without tact. The patient is inclined to get the idea that something unusual is about to happen, and begins to magnify her small ailments. This is especially true of primipara. They should have their attention called to the fact that there have been many women in the same state before, and that everything is to be done without the expectation of trouble but

with the purpose of forestalling the same. She should be especially protected from her "friends" who bring gloomy and superstitious "yarns" about maternal impressions, together with fancied and true accidents which have befallen other women under the same conditions.

Physical Examination: This should be done early in the case where the patient is new to her medical adviser, and in all patients where there is any likelihood of trouble. A complete pelvic examination should be made as soon as the foetus is viable. This is to ascertain the roominess of the pelvis, both bony and soft parts. Towards the last, if an X-ray is available, the position of the child, multiple pregnancies and many other points helpful to the attendant can be ascertained without the manual examination.

Hospitalization: This is advisable where there is any likelihood of operative help being necessary in the delivery. However, it will be a long time before all women can have these advantages.

Supplies: Every woman expecting to be confined should be given a printed list of the things likely to be needed.

In everything the patient should have entire confidence in her medical adviser, and he should be worthy of the same.

A FEW REMARKS ABOUT ETHYLENE.*

By I. H. GOLDMAN, M. D., Richmond, Va.
Anaesthetist to Johnston-Willis Hospital; Consulting Anaesthetist to Memorial, Saint Philip's and Dooley Hospitals; Assistant in Surgery, Medical College of Virginia.

This paper deals only with a brief practical consideration of ethylene anaesthesia. Whoever now-a-days is beginning to be interested in ethylene is looking for a reassurance of safety and efficiency. Ethylene, or olefiant gas, is made by extracting a molecule of water from alcohol. Its formula is C_2H_4 . It is a hydrocarbon gas, and an essential constituent of illuminating gas, has a pungent sweetish odor like wet matches or sorghum, is highly inflammable, and is quite comparable to ether in these respects.

The gas is compressed to a liquid in steel cylinders and is available for use in the same manner as nitrous oxide. Ethylene is administered in combination with oxygen by means of a gas machine. It can be used in conjunction with nitrous oxide, and to such a

mixture ether can be added. A hypodermic of morphine and atropine is permissible, and often desirable. The signs of anaesthesia are much the same as when nitrous oxide and oxygen are given. The machine I use is the Seattle Model of the Gwathmey apparatus, which I think is the most economical in the amount of gas used and the simplest to handle of any type of machine made at the present time.

Experiments have shown that ethylene and oxygen, and to a minor degree, ethylene and nitrous oxide, are explosive in certain proportions and under pressure; therefore, a diaphragm reducing valve having a pressure chamber if used with ethylene should not be used with nitrous oxide, or vice versa. Any gas machine having two reducing valves, one for oxygen, one for nitrous oxide, can only be used either with ethylene-oxygen, or with nitrous oxide-oxygen, and alterations of the two would be risky. The Gwathmey apparatus having no diaphragm reducing valves, therefore no pressure chamber to involve risks, is in this respect safe.

Another very important factor of safety is that, with the Gwathmey apparatus the gases only combine after they bubble through the water of the sight feed, when they are at low atmospheric pressure, or a pressure of maximum 10 m.m. mercury, which is considered safe for the mixture. I get between five and seven anaesthesias out of a 250 gallon tank of ethylene. The oxygen used costs per anaesthesia about fifty cents, making a total cost between \$1.75 and \$2.25 per anaesthesia. The amount of ethylene necessary to maintain anaesthesia averages about eighty-five to ninety-five per cent ethylene, or two to four holes, and oxygen five to twenty per cent, or one to two holes.

Advantages accompanying ethylene anaesthesia are numerous. We get better relaxation without cyanosis, a greater quantity of oxygen can be given with ethylene than with nitrous oxide without disturbing anaesthesia, patients are not as prostrated nor as exhausted from ethylene as they are from the other general anaesthetic agents, and consciousness and strength are quickly recovered. The patient's skin remains dry although rebreathing usually causes sweating, which may be overcome by administration of atropine. Ethylene is a

*Read before the Southside Virginia Medical Society, at Richmond, Va., September 16, 1924.

relatively safe anaesthetic, although it may become dangerous in unskilled hands.

Disadvantages are few. The principal one is its inflammability, which is no greater than that of ether. The rebreathing method gives the maximum of safety, as a minimum amount of gas escapes into the room. The odor is considered disagreeable, but this can be overcome in different ways:

1. By adding an agreeable scent to the gas as it passes through the machine.
2. Beginning with a dilute mixture of ethylene and oxygen.
3. By using nitrous oxide and oxygen as an induction.

Headache, which frequently follows nitrous oxide-oxygen, is not uncommon after the use of ethylene, but is less troublesome and not as severe; nausea and vomiting following ethylene anaesthesia are not uncommon, but usually mild, and of short duration.

Cyanosis may develop, and should be avoided; respiratory irritation is uncommon, but there is a slight amount of it with prolonged rebreathing.

Oozing.—It has been claimed by some that you get more oozing from the administration of ethylene than with other general anaesthetics. This I have failed to see, as I have changed from ethylene to ether, and have noticed no marked change in this respect. Up to the present time I have given 500 administrations of ethylene. The patients' ages varied from 2 years to 76 years, with no fatalities.

In this series ethylene was used in different combinations, such as—

1. Local ethylene-oxygen.
2. Ethylene-nitrous-oxide-ether.
3. Ethylene-nitrous-oxide-oxygen.
4. Nitrous-oxide induction, followed by ethylene-oxygen.
5. Ethylene-oxygen and ether.

Ethylene is non-toxic, and in my experience with ethylene, there has been a slight rise in blood pressure from 10 to 20 m.m. during the administration of the anaesthetic. I realize this is contrary to the observations of others, but I have taken the pressure before, during and after the administration. It is particularly advantageous to use this form of anaesthesia in bad heart cases, acidosis, diabetes, nephritis, in fact, any case in which you are at a loss as to what anaesthetic to use. A preliminary hypodermic of morphine and atropine is very

desirable, unless contra-indicated; atropine reduces sweating in maximum rebreathing, and the rebreathing method reduces the fire risk, as it allows only a minimum amount of gas to escape into the room. I also take the precaution to ground my machine by having an ordinary wire run from the machine to a pipe, and see that no electric machines are running and no cautery burning.

I suggest that you try not to make any one anaesthetic do the impossible. The anaesthetic should be varied until the proper mixture is obtained. The simple and safe rule is to keep the patient pink and asleep with a maximum amount of oxygen and a minimum amount of ether. My impression is that ethylene has come to stay, and has made for itself a permanent place among the general anaesthetics.

1101 Floyd Avenue.

A CASE OF BILATERAL TUBAL PREGNANCY.

By H. E. JORDAN, Ph.D.,

and
I. A. BIGGER, M. D.,
University, Va.

Instances of simultaneous pregnancy of both tubes remain sufficiently rare to warrant report of any additional case. Scheiber (*Zentralblatt f. Gyn.*, Oct. 11, 1924), who claims to have reported the first case since that of Borell in 1921, states that only twenty-seven cases are on record. Schreiber found an embryo of approximately the third week in the left tube. The right tube had ruptured, and the embryo was not recovered. The abdominal end of the tube contained chorionic villi ("placentarzottent"). Since the right ovary lacked a macroscopically discernible corpus luteum, he infers that both eggs came from the left ovary. The left ovary contained a conspicuous corpus luteum. Schreiber concludes that his case of double tubal pregnancy is one of simultaneous fertilization of two eggs.

Our case is very similar to Schreiber's except that here the stage of development is clearly older. The right tube was dilated near the middle, attaining here a diameter of approximately 20 mm. The dilatation tapers gradually to within 10 mm. of the fimbriated end through a distance of 50 mm. On opening the area of greatest dilatation a well-preserved, apparently normal, embryo of 13 mm. length was disclosed, attached by a clear, delicate

umbilical cord of 8 mm. length to a compact mass of normal chorionic villi. The distal portion of the dilatation was filled with a conical thrombus 20 mm. in length, forming a complete cast of the tube.

The left tube had ruptured. A large, irregularly spheroidal blood clot, approximately 50 mm. in diameter, protruded from the area of rupture. After removal of the clot this tube had approximately the dimensions of its intact mate. No embryo was recovered from this tube. The embryo had probably suffered resorption, as had also the placenta, under pressure of the blood clot. A few persistent chorionic villi, though considerably disintegrated, have approximately the histology of those of the unruptured tube. It may be inferred, accordingly, that the pregnancies in both tubes are of approximately the same age, about seven weeks, and the result of a coincident fertilization. This estimation of age on the basis of length takes no account of a probable stunting due to relatively poor nutritive conditions in the tubes. Correcting for this factor, possibly as much as ten days should be added. Corpora lutea were not looked for at operation, hence we have no information as to whether the two eggs came from the same or both ovaries.

This patient was thirty-one years of age, and the mother of six children. She last menstruated on July 13, 1924, fifty-two days before the onset of the present trouble, and sixty days before operation. The menstrual history is in accord with the inference of equal age of the two pregnancies. Eight days before operation she developed severe pains in the lower abdomen, most marked on the left side. These lasted only a short time, but recurred five days later with greater intensity, and were accompanied by a bloody vaginal discharge. Several hours later she was admitted to the University of Virginia Hospital, and at operation the conditions described above were found. Nothing in the clinical history, nor the anatomical conditions observed at operation, furnish the slightest clue to account for the tubal implantations.

A cheerful greeting dispels grief; it soothes pain; it spreads happiness.—*Selected.*

THE LESSON TAUGHT BY OVER TWO HUNDRED THOUSAND INJECTIONS OF ARSENICALS.*

By T. LATANE DRISCOLL, M. D., Richmond, Va.
Associate in Syphilology, Medical College of Virginia.

The injections referred to in the title of this paper were arsphenamine, neo-arsphenamine, and sulpharsphenamine. The work was done at the Medical College of Virginia Dispensary, the United States Public Health Service, the Richmond Health Bureau, and in my private practice. The number to date is about two hundred and forty thousand, with the following observations and ultimate conclusions:

1. The further a molecule is evolved away from the original arsphenamine, the less efficient is this molecule in the therapeutics of syphilis, as manifest by paralleling a series of one hundred and fifty cases treated with neo-arsphenamine and arsphenamine, and finding that the arsphenamine, as determined by the effect on Wassermann and symptoms, was about 40 per cent more efficient, while sulpharsphenamine was about 20 per cent less efficient than neo-arsphenamine.

2. Careful preparation of "606," taking care to convert the salvarsan salt into the di-sodium salt, with proper dilution and rate of flow, makes this the least toxic of all the arsenicals, as demonstrated by the morbidity rate, arsphenamine being about one-half of one per cent, and neo-arsphenamine producing an endotoxemia in 10 per cent of the whole.

3. Judging arsphenamine as it has to do with clinical and serologic results, only a small amount of the molecule is available as a spirocheticidal agent, and it seems as definite results are obtained with the smaller doses as with the maximum, my reasoning being based upon the effect of comparisons in four decigram and one decigram doses on cutaneous lesions, together with paralleling six decigram doses and three decigram doses, as they have to do with a Wassermann reaction. There is but little if any difference in effect. It is obvious that if this is correct, patients are infinitely better off with small doses.

4. Relative immunity is established for the drug, or treponemata become tolerant to arsenic, and the anti-syphilitic drugs should be alternated after this apparent tolerance to obtain maximum results.†

5. The contra-indications for arsenic are

*Read before the Richmond Academy of Medicine.

†Reference: Driscoll, Va. Med. Mo., Dec., 1924, Page 556.

greatly exaggerated as most of the so-called contra-indications are in reality syphilitic in origin.

6. The kidney and other tests, while fairly accurate, do not necessarily offer any clue as to the dangers incident upon the injection of arsenicals, as the kidneys may be functioning normally, and the patient may withal have dermatitis or endotoxemia.

7. Albuminuria, casts, and enormous amounts of pus often clear up after arsphenamine treatment, instead of being a positive contra-indication.

8. The blood stream takes care of an enormous amount of septic and foreign material without any apparent disagreeable symptoms resulting.

9. Arsphenamine allowed to set after alkalinization for fifteen to twenty minutes is less toxic than arsphenamine immediately injected, as it takes about this time for complete chemical change.

10. Sensitized patients, that is those with nitritoid or anaphylactoid reactions, are apparently desensitized with neo-arsphenamine, as, after the injection of the neo preparation, I am able to go back on salvarsan with impunity.

11. The dilution and rate of flow figure as the most conspicuous etiologic factors in the production of reactions after proper alkalinization.

12. There are few veins into which an operator may not gain entrance; therefore, no very good reason for the discomfort that accompanies intramuscular injections, or so-called spills because of this fact.

13. Patients with syphilis may be cured with arsphenamine alone, taking our methods now available for determining cure.

14. Arsenical dermatitis may occur irrespective of dose, some patients developing this condition with five centigram injection.

15. The kidney function test plays no part in certain cases, so far as indicating the probability of dermatitis. We should bear in mind idiosyncrasy, or probably a peculiar tendency of some patients to excrete arsenic by the skin route; also that this disease is probably due to the deposition of arsenic in the layers of the skin.

16. The promiscuous giving of "606" without the proper knowledge of syphilis or the drug is to be deplored.

17. Neo-arsphenamine is a potent drug, but the advertised simplicity and relative safety is misleading, and grave errors have resulted therefrom.

18. In my hands sulpharsphenamine is the least efficacious of the preparations under discussion, certainly so far as it has to do with obtaining a negative serology. Upon primary and secondary lesions, the effect is not to be complained of.

19. Under ordinary circumstances, giving rather large doses of mercury and bismuth at the same time with arsenical treatment, is more than the average kidney or liver can stand.

20. Jaundice is a condition brought about by therapy, and is not a syphilitic condition; it constitutes a positive contra-indication for further therapy at the time.

21. Reactions may be divided into three separate and distinct groups, each group representing a distinct group entity of symptoms, with different treatment for the varying manifestations.

The first and most common reaction is what seems to be a distinct allergic phenomenon, the sensitization being due to either killed treponemata or the drug, with the symptoms almost classically those of hypersensitization, and may develop after only a few drops of the drug have been administered, or a few minutes following the injection of the entire dose.

Symptoms come on rather suddenly, and are often most distressing. In the order of development, they vary but little: first, redness of the conjunctivae, suffusion of the face, and a few seconds later we may observe cyanosis. We may also note cough and dyspnoea, the latter assuming not infrequently the type of orthopnoea. Edema of the eyelids and lips, rapid and oftentimes thready pulse are also seen, these symptoms merging frequently into a picture of shock, with cold extremities, sweat, and collapse.

The second type of reaction is the clinical picture of a toxemia, and does not differ from a toxemia due to other causes. The following symptoms may occur from two to twelve hours after injection: Chill, with nausea and vomiting, diarrhoea, fever which seldom goes above 101 to 102 degrees Fahrenheit, pains in the epigastrium, sometimes throughout the entire abdomen, these lasting for a few hours or days.

The classic Herxheimer reaction in my experience is not common, although occasionally

it is encountered. It may explain some of the plegias and cases of coma following "606" by assuming that the focal erythema occurring around syphilides extends to lesions in the cord or brain, thereby producing pressure with the attendant symptoms.

Infrequently an attack of pulmonary congestion or edema is precipitated by the too rapid administration of the drug in cases of advanced lesions. This accident is due to the fact that the operator is unacquainted with the physical findings in his patient.

There is, however, a most distressing symptom arising at times, coming on with nothing else that I have been able to determine except the one thing, a terrific pain in the lower back. This has been explained by one author as the action of toxins on the splanchnic area.

22. Dermatitis develops about once in twenty-five thousand injections, regardless of the care used in ascertaining possible conditions which might predispose to this, and with the utmost care in administering the drug.

23. One patient in a hundred complains of some reactive symptoms, but when the morbidity mounts to 4 per cent, there is some defect in water, alkali, or injection technique.

24. The persistence of a positive Wassermann is indicative of a further syphilitic process, but in the aged or infirm, the wiser course is to tolerate this rather than to take chances in our enthusiasm with too much therapy.

25. The treatment of neuro-syphilis, in the light of our present knowledge and the methods used, is not to be depended upon. A positive cerebrospinal fluid does not of itself indicate general neuro-involvement, but simply potential neuro-involvement, as does all syphilis.

26. The final summing up of my experience indicates that we are far from having a specific in the treatment of syphilis; but it appears some cases are cured by using, consistently and conservatively, the known drugs after long and patient treatment and careful observation over a period of years.

In concluding, I would say too much faith is being placed in a single drug.

Medical Arts Building.

CHEW IT OVER.

To those who talk and talk and talk

This adage will appeal:

The steam that blows the whistle

Will never turn a wheel.—*Selected.*

Correspondence

Notes on Florida.*

TO THE EDITOR:

A sketch of some of the things observed during a winter's stay in this state may interest some readers of the VIRGINIA MEDICAL MONTHLY, though our experience has been limited to only a few localities. Brought here by a case of asthma in the family, we are on a sandy key, Long Key, off the west coast, and in the Gulf of Mexico, some dozen miles from St. Petersburg. The island is of pure white sand, formed entirely of finely broken shell; it is several miles in length, and only a few hundred feet wide. A bridge one mile long connects with the mainland, and a village of perhaps a thousand people is located near one end of the key. It is a resort to some extent renowned for climatic cure of asthma, as well as beneficial to rheumatism and other like ailments, and particularly adapted to under-developed children. As in St. Petersburg, known as the "Sunshine City," records show that for the past fifteen years there have been an average of only five-and-a-half days per year when the sun did not shine a part at least of the day. A wide, clean, white sand beach stretches almost the entire length of the island, with surf of the open gulf breaking on it constantly. The shallow water extends several hundred yards from shore, and there is no undertow, so it is safe for children, as well as a beautiful playground of which they never tire.

The water is very hard, it is heavily charged with sulphuretted hydrogen gas, which escapes when the water is allowed to stand. One or more flowing wells of this water, exist on the island, as also of other water more palatable for beverage purpose. For household use many use cistern water (rain water), and distilled water is obtainable for drinking. A bus line, and a boat line connecting with trolley cars at the mainland, furnish means of communication. The town has electric lights, and sewerage, also fire-engine, but no gas as yet. It is a popular place for St. Petersburg people to visit, especially for Sunday afternoon auto drive, usually about fifteen hundred or more cars crossing the bridge in each direction every Sunday.

*When we found that Dr. E. P. Tompkins, Roanoke, Va., was spending the winter in Florida, we asked him to let us have some communication from him when he had time to write. These "Notes on Florida" have proved so interesting to us, that we are publishing them in full.

St. Petersburg is probably the tourist town, *par excellence*, of the state. It is said to have a summer population of thirty odd thousand, and a winter population of a *hundred* and thirty odd thousand. The distinctive feature of the town is the "Green Benches." Thousands of these benches, seating about four or five people each, are placed back to back on the wide sidewalks; and all day and far into the night are filled with tourists, basking in the sun or enjoying the balmy air of evening. It is noticeable that many elderly people, and some very old people, are included in the number; and a fairly large percentage of those of more youthful appearance are evidently not strong, some have deformities, some are cripples from accident,—not a few rolling chairs may be seen, and some of the churches have "ramps" built beside the steps for the benefit of the roller chair folk. Incidentally, one must reach the church of his preferred denomination at least half an hour before service time in order to be sure of a seat.

As may be expected this multitude of people with time on their hands furnishes a great opportunity for the advertising cure-all people, and they are not slow to seize the chance. Handbills are distributed inviting all to this or that hall (it is said no lectures or harangues are permitted on the streets or in the parks), to hear "Doctor" So-and-so tell how to get well, or "Professor" Ketchem unfold his marvels of science (sic), and incidentally to learn that the Doctor has consented to reduce his consultation fee from fifty dollars to thirty dollars for this occasion only. It may be said that the "doctor's" lack of knowledge of elementary physiology is more than made up for by his self-assurance.

On a certain recent occasion, a young man was advertised to drive a car blind-folded through city traffic. The newspaper stated that "Dr. W—— of the doctors of chiropractic pronounced him fit, except for a slight subluxation of the second vertebra of the spine," and Dr. W—— would "follow in the press car to give adjustment at terminus in case it is necessary." Likewise a display ad informs the suffering public that "Bone-Setter A—— adjusts ligaments, tendons, prolapsed stomachs, constipation, colitis, gall, bladder, all nervous muscular trouble." (Punctuation as in the paper). Dr. C——, not to be outdone states that, "Owing to the delicious fresh foods, his treatment here

is very successful," slightly ambiguous as to where the success lies, but answers the purpose.

The Florida Funeral Home announces briefly and rather cryptically: "Morticians—Demi-Surgery. Private Limousine Ambulance." Most of the medical profession know what surgery means, only a few know *demi-surgery*. Which are you?

To the credit of the medical profession of the state it should be known that the Board of Examiners—which requires that every member of the regular profession entering the state to practice shall pass its examination, and reciprocates with no other examining board—is making efforts to curb the illegal gentry, and recently made several arrests of alleged law violators, one of whom admitted he charged twelve hundred and fifty dollars for some three weeks of "treatment," consisting in part, (may be entirely) in restricting the patient to *raw foods*. In addition to this, at certain intervals appears in the daily papers this notice: "The following St. Petersburg physicians are members of the Pinellas County Medical Society and the Florida State Medical Association and are eligible for membership in the Southern Medical Association and the American Medical Association." Then is given a list of some two score names in alphabetical order. The sojourner who is interested in matters of health is thereby informed as to qualified men.

A local member of the examining board, in a newspaper interview, last week, said, "The fight will go on. We hope it will be brought to an end next year, but it will not be brought to an end until Florida is thoroughly cleaned of medical practitioners who are engaged in work illegally without license and who are not qualified educationally to carry on the work. We are hoping that only duly registered and qualified physicians will be left in Florida after the campaign."

St. Petersburg is to be the place of meeting for the 1925 session of the Florida State Medical Association. This will take place in May, and it is expected that a large number, some five or six hundred members and guests, will be in attendance.

Up further in the peninsula, at Safety Harbor, has recently been opened a Sanitarium for the treatment of rheumatic affections. It is up-to-the minute in all its appointments, and is said to have cost, together with pavilion and bath houses, over a million dollars. It is fi-

nanced by St. Petersburg and Tampa men, a number of physicians and specialists from the latter city being on the staff. It is in charge of and under the direction of Dr. Edwards, a former Georgia physician, well-known, thoroughly qualified, and a most genial and courteous gentleman. It is here that is located the Espiritu Santa Springs, highly esteemed for many years in the treatment of rheumatism and neuritis. These springs are five in number, varying in their chemical composition, most of them highly charged with mineral substances, but one of them almost approaching distilled water in its purity, or absence of mineral constituents, it is said. These springs, together with the equable climate for which this whole section of the state is noted, will assure a patronage constantly up to full capacity. So far, the accommodations are complete for only sixty-five patients, and the full quota was already engaged long before the buildings were completed. In addition to the sanitarium, however, the same company is to build immediately a hotel of three hundred and twelve rooms, and this is to be rushed to completion.

Stories are told of the very remarkable cures wrought by the water and the climate here. Residents speak of case after case coming on stretchers, or in wheeled chairs or on crutches, which in a brief time are discarded, and the patient able to walk without help. It is said that formerly a pile of crutches lay near the springs, thrown away by one-time users, mute but eloquent tribute to the efficacy of the waters. Some wag, thinking to make the picture more nearly complete, on one occasion added a couple of wooden legs! The management, fearing this was claiming rather too much, had them speedily removed as soon as discovered.

Up at Howey-in-the-Hills is a community rapidly building up which seems to be especially popular with the medical fraternity. Some forty-odd doctors are interested here, either as residents for part or all the year, many owning homes, and others sojourning at the very comfortable and well appointed hotel. In the promoting company are a number of physicians, and the intention is to make this a very high-class and select community, where homes may be made, and a cultured and congenial community established. However, it is not restricted to physicians by any means; lawyers

and other professional and business men are likewise interested. This is on the border of Lake Harris, and in time this will be the head of transportation through a chain of fresh water lakes and out through the St. John River. Eighty thousand acres of land are owned by the promoting company, on which there are some fourteen hundred lakes, large and small, all of which are well stocked with fish, and angling is the order of the day the year 'round. This is highland for Florida, three hundred and sixty feet, it is said. The presence of the immense bodies of water surrounding it makes for very equable climate, and it is in this region that the citrus fruits thrive best. Thousands of acres of orange and grapefruit groves are in this vicinity, and not far away are the centers also of the celery, lettuce, and pepper industries, twenty and thirty acre fields of each being not uncommon.

While it is not indexed in medical books, as such, no description of Florida would be complete without some mention of real estate "fever." It is epidemic, endemic, and pandemic, all over the state. It is in the air, and in the water, and in the food. One never speaks for ten minutes on the street with a casual acquaintance that he is not admonished where he can get the very best bargain in "lots" or, as many prefer now, "estates," or where a fine piece of acreage can be had 'way under the market; the elevator boy in the hotel will sell you property, likewise the barber who trims your hair. "Developments" and "sub-divisions" float around in the air, all the talk one hears in hotel lobbies, in the parks, on the "Green Benches" is of real estate. Fortunes are made, prices continue to mount, one wonders where the end will be. The migration of humankind into Florida is one of the most remarkable movements of the century so far. Broad smooth highways are built through the wilderness, for miles on miles as one passes over them by auto not a living creature other than human beings in motor cars going in the opposite direction may be seen. Some day this wilderness will be cleared out, fields and homes established, and the land made fruitful. The railroads just now are taxed to carry the northbound tide of humanity, not to mention the thousands upon thousands of motor cars with full loads on the brick-paved roads. Every year more and more are coming to stay, those who are best in posi-

tion to know say that it is "only seven o'clock in the morning as yet in Florida."

E. PENDLETON TOMPKINS, M. D.

Pass-a-Grille, Florida.

April 2, 1925.

The Goiter.

TO THE EDITOR:

Goiter is an old subject but one that now needs increased attention. Basing my remarks on evidence in the September number of *American Medicine*, it is time for our medical societies to urge State Health Departments to take immediate and active interest in the study and prevention of this menace through the aid of public enlightenment and of individual physicians in general practice. It is futile to wait until the physical and mental and moral condition of the children of the present generation is beyond control.

The sound functional development and activity of the thyroid gland is necessary for the best physical and mental development of the children. But it cannot be of maximum service without the sanction and approval of those who have the care of the children; and then not to the fullest extent of efficiency until it is backed by the supportive value of those who are able and willing to undertake the public spirit necessary to create appropriations equal to the cost of the medication to assure the benefit recognized by experience elsewhere; especially is this the case in Switzerland, where it has done acknowledged good. Medical literature tells us of the prophylactic encouragement in Switzerland, which country we might well call the "home of goiter." "Among the school children of the Canton of St. Gallen there were 87.6 per cent in 1919 who had goiter, while only 13.1 per cent were found thus affected in 1922. On account of this remarkable achievement, the Goiter Commission of Switzerland, in 1923, recommended the use of iodine as a preventive measure throughout the entire state as a public health measure.

The City of Rochester, N. Y., has adopted the plan. For a period of two weeks during the spring and autumn sufficient sodium iodide is added to the daily water supply to constitute an iodine content of 1.75 of a grain to the gallon. This would give in two quarts of water

taken each day seven-eighths of a grain of iodine, which Swiss experience has demonstrated to be effective.

The Health Department of Grand Rapids regards goiter prevention as a necessary public health measure, to be attacked through the existent organization of school physicians and nurses. It is further stated: "The fact that 75 per cent of simple goiter occurs among school children indicates the rationality of undertaking the correction of goiter during the period when children are more readily reached and controlled and when the educational value of the measure as related to health can be adequately presented to children and their parents.

This procedure seems to be the most rational and effective plan of attack that can be put in operation. It is simple and easy to control and, once in general use, it will very soon become a fixed part of our educational scheme. Education without health can never reach maximum results. The generations to follow must be cared for now in the making—it is too late after the damage is done. Prevention is what they need.

We are told that in a survey of the school children in Grand Rapids, 30 per cent were found to have enlargement of the thyroid gland; 33 per cent of the number were boys and 67 per cent were girls. The thyroid enlargements increased gradually from the age of five to fifteen years and, consequently, are most frequent at the adolescent period.

In 1916, Akron, Ohio, started the good work in this country. The idea is being put in operation throughout the world. Why not begin now in Virginia? No newspaper published in this State should let health boards rest until this goiter-prevention is put into constant use in our schools. Why have our girls and boys sick when it can be so easily and cheaply avoided?

STEPHEN HARRNSBERGER, M. D.

Warrenton, Va.

A little girl timidly asked the drug clerk for a package of pink dye.

"What do you want it for?" responded the clerk. "Woolen or cotton goods?"

"Neither," said the child. "It's for ma's stomach. The doctor said she's to diet, and she wants it a pretty color."—*Exchange.*

The Truth About Medicine

In addition to the articles enumerated in our letter of February 28, 1925, the following have been accepted:

- Abbott Laboratories
- Butesin Picrate Dusting Powder.
- Eli Lilly and Co.
- Iletin (Insulin—Lilly)—U-80, 10 c.c.
- H. K. Mulford Co.
- Rabies Vaccine (Phenol Killed)—Mulford.
- Parke, Davis and Co.
- Desiccated Para Thyroid Gland—P. D. and Co.
- Cauliflower Protein Extract Diagnostic—P. D. and Co.
- Lentil Protein Extract Diagnostic—P. D. and Co.
- Friedlander Bacillus Protein Extract Diagnostic—P. D. and Co.
- Micrococcus Tetragenus Protein Extract Diagnostic—P. D. and Co.
- Streptococcus Hemolytic Protein Extract Diagnostic—P. D. and Co.
- Streptococcus Non-Hemolytic Protein Extract Diagnostic—P. D. and Co.
- Paratyphoid, A Protein Extract Diagnostic—P. D. and Co.
- Paratyphoid B, Protein Extract Diagnostic—P. D. and Co.
- Pine Pollen Protein Extract Diagnostic—P. D. and Co.
- Apricot Protein Extract Diagnostic—P. D. and Co.
- Yellow Daisy Pollen Protein Diagnostic—P. D. and Co.
- Ox-Eye Daisy Pollen Protein Diagnostic—P. D. and Co.
- Oak Pollen Protein Extracts Diagnostic—P. D. and Co.
- E. R. Squibb and Sons.
- Insulin—Squibb, 40 Units, 5 c.c.
- Bean (Kidney) Allergens—Squibb, Cauliflower.
- Allergens—Squibb, Frog's Legs Allergens—Squibb.
- Daisy Pollen Allergens—Squibb, Bacillus Acne Allergens—Squibb, Bacillus Friedlander Allergens—Squibb.
- Swan-Myers Co.
- Timothy Pollen Extract—Swan-Myers.

NEW AND NON-OFFICIAL REMEDIES.

Tuberculin Intracutaneous (Human Type). A preparation of tuberculin—Koch (New and Non-official Remedies, 1924, p. 309), marketed in single packages of one intradermal syringe containing 0.00005 c.c. of tuberculin old "O. T."; in packages of five intradermal syringes each containing 0.00005 c.c. of tuberculin old "O. T." and in single vial packages containing tuberculin old "O. T." sufficient for fifty tests. H. K. Mulford Co., Philadelphia.

Squibb's Liquid Petrolatum with Agar.—A mixture composed of liquid petrolatum—Squibb—heavy (California) 50 c.c.; agar 1.5 Gm.; sodium benzoate, 0.1 Gm.; acacia, glycerine and water sufficient to make 100 c.c. Squibb's liquid petrolatum with agar has the action of liquid petrolatum. It is claimed that the agar by adding bland bulk to the bowel contents, stimulates peristalsis in a normal way and that the combination of liquid petrolatum with agar mixes readily with the feces and softens them. E. R. Squibb and Sons, New York.

Mercurosol Ampules 0.1 Gm.—Each ampule contains mercurisol (New and Non-official Remedies, 1924, p. 207), 0.1 Gm. in 5 c.c. of distilled water con-

taining 0.1 per cent of sodium citrate. Parke, Davis and Co., Detroit. (Jour. A. M. A., March 7, 1925, p. 751).

Tryparsamide—Sodium N-phenylglycinamide-p-arsenate. Thyparsamide contains 24.6 per cent of arsenic in organic combination. Tryparsamide is primarily a trypanocidal agent and is proposed for use in the treatment of certain forms of trypanosomiasis. Tryparsamide has some spirocheticidal activity and has an unusual power of therapeutic penetration, especially in the case of the central nervous system. This has led to its trial in certain cases of cerebrospinal syphilis. The value of the drug in these conditions, as compared with other methods of treatment, has not been conclusively determined. Tabetic affections have responded less satisfactorily, and patients with general paresis with advanced physical and mental deterioration have shown little or no improvement and the drug may hasten the progress of the disease in such cases. Its use is considered to be contraindicated in forms of syphilis other than that of the central nervous system. The worst of the properties of the drug is a tendency to produce amblyopia. Before using the drug, consideration should be given to the frequent production of visual injury. Tryparsamide may be administered subcutaneously, intramuscularly or intravenously. Powers-Weightman-Rosengarten Co., Philadelphia. (Jour. A. M. A., March 14, 1925, p. 815).

Insulin—Squibb, 40 Units—5 c.c. vials containing 40 units of insulin—Squibb. (The Journal, A. M. A., November 8, 1924, p. 1509), in each c.c. E. R. Squibb and Sons, N. Y.

Rabies Vaccine (Phenol Killed)—Mulford.—The virus is prepared according to the general method of David Semple. It consists of a sterile suspension of the brain tissue of rabbits moribund from the injection of virulent fixed strain of rabies. The virus is killed by the use of phenol and by incubation at 37.5 c. for twenty-four hours. Marketed in packages of fourteen doses, each dose contained in a syringe. All the doses are of the same potency. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., March 21, 1925, p. 893).

PROPAGANDA FOR REFORM.

Scarlet Fever Antitoxin and Scarlet Fever Serums.—The scarlet fever serum of Dochez and Blake is prepared by injecting a horse with culture medium and into this inoculating living streptococci which cause abscesses producing toxin against which the horse develops antibodies. The serum derived from the horse is an antistreptococcus serum.

The scarlet fever antitoxin prepared by the Dicks is secured by injecting a horse with a toxin prepared from the filtrate of cultures of specific streptococci isolated from cases of scarlet fever. With this toxin, the Dicks report, they have been able to produce symptoms in human beings that closely resemble the symptoms of scarlet fever. The toxin therefore is injected into a horse. The serum obtained from the horse is a scarlet fever antitoxin just as diphtheria antitoxin serum is prepared by inoculating a horse with the toxin of diphtheria bacilli elaborated by the diphtheria bacillus. The latter statement is true, of course, only to the extent that the Dick toxin is actually the specific scarlet fever toxin. The matter is complicated still further by the fact that the Dick antitoxin is concentrated, and it is claimed less likely to produce serum reactions than the unconcentrated Dochez serum. (Jour. A. M. A., March 14, 1925, p. 819).

Tricalcine Not Accepted for N. N. R.—The Laboratoire des "Produits Scientia," Paris, France, markets

"Tricalcine" in the form of powder, cachets, compressed tablets, chocolate tablets, and also cachets of "Tricalcine adrenalinee," stated to contain 3 drops of a 1 to 1,000 solution of epinephrin per cachet, cachets of "Tricalcine Methylarsinee," stated to contain 0.01 gm. of sodium cacodylate per cachet, and cachets of "Tricalcine Fluoree," stated to contain 0.02 gm. of calcium fluorid. From the indefinite statements which appear in the advertising, it is evident that Tricalcine is claimed to be a mixture containing calcium phosphate and calcium carbonate as its essential ingredients, but that its exact composition is not declared. The advertising for Tricalcine has for its basis the abandoned lime starvation theory. The recommendations for the use of Tricalcine are without a satisfactory experimental basis. The Council on Pharmacy and Chemistry reports that Tricalcine and its preparations are unacceptable for New and Non-official Remedies because (1) indefinite, conflicting and unacceptable statements are made in regard to the composition of Tricalcine; (2) the product is marketed in a way to invite its promiscuous use by the public; (3) the extensive recommendations for its use are unwarranted, and (4) the combination of Tricalcine with, respectively: epinephrin, sodium cacodylate and calcium fluorid is unscientific. (Jour. A. M. A., March 14, 1925, p. 836).

Agrilin Not Accepted for N. N. R.—Agrilin is the uninformative name under which Lehn and Fink, Inc., New York, market a mixture of liquid petrolatum and agar. The preparation is stated to contain 38.6 per cent. of liquid petrolatum, and 2.25 per cent. of agar. Agrilin is offered to the medical profession and also through the trade package and newspaper advertisements, to the public. The Council on Pharmacy and Chemistry found Agrilin unacceptable for New and Non-official Remedies because (1) the name is not descriptive of its composition; (2) it is marketed with claims that are unwarranted and misleading and (3) it is advertised directly and indirectly to the public and thus furthers the ill-advised use of laxatives. (Jour. A. M. A., March 14, 1925, p. 837).

Loeser's Intravenous Solution of Calcium Chlorid Not Accepted for N. N. R.—In the advertising of the New York Intravenous Laboratory, Loeser's Intravenous Solution of Calcium Chlorid is proposed for use especially in intestinal tuberculosis and tetany. In neither condition are the indications so urgent that the intravenous method is the only or the best method of introducing calcium. The oral administration is generally to be preferred. But the manufacturers make the astounding statement that "Neither calcium nor guaiacol is adapted to oral administrations." The Council on Pharmacy and Chemistry found Loeser's Intravenous Solution of Calcium Chlorid inadmissible to New and Non-official Remedies because the advertising implies that the intravenous method is generally the method of choice for the administration of calcium and that calcium is not adapted to oral administration; these claims were held misleading and unwarranted. (Jour. A. M. A., March 21, 1925, p. 914.)

Sagrotan Omitted from N. N. R. and Mitysol Not Accepted.—Under the proprietary non-descriptive name "Sagrotan," the Council on Pharmacy and Chemistry recognized a mixture containing chlorcresol and chlorxylenol in a soap solution marketed by Lehn and Fink, Inc. This action was taken because the rules of the Council provide that a proprietary name may be recognized for a product when such a name is applied to it by the discoverer and because Lehn and Fink, Inc., claimed that they had

secured the trademark rights to the name from Schuelke and Mayr, Hamburg, Germany. Subsequently, Lehn and Fink, Inc., informed the Council that the word Sagrotan "had fallen into the hands of the alien property custodian" and that for this reason the product was to be marketed as "Mitysol." The Council rescinded its acceptance of "Sagrotan" because the product is no longer marketed. The Council refused recognition to the product now marketed as Mitysol for the reason that Lehn and Fink is not its originator. (Jour. A. M. A., March 21, 1925, p. 914).

Typhoid Vaccine—The typhoid vaccine now in general use, is usually made from a type of organism of low virulence, properly sterilized by heat and containing preservatives, and is administered in doses of three injections, seven days apart. Immunity apparently appears about the end of the first week after the first or second injection. The blood serum of the vaccinated person has then acquired immunizing properties. These properties increase and may reach their maximum shortly after the third injection. It seems to be agreed that this immunity, once acquired, may last for several years; but there is no absolute certainty that a person immunized may not be subsequently infected during this period and typhoid fever produced. (Jour. A. M. A., March 21, 1925, p. 916).

Book Announcements

Report on Second International Congress of Military Medicine and Pharmacy, in Rome, May-June, 1923. By COMMANDER WILLIAM SEAMAN BAINBRIDGE, M. C., U. S. Naval Reserve Forces, Member of Permanent Committee, Delegate from the United States. Reprinted from The Military Surgeon, December, 1924, January and February, 1925. Washington, D. C., 1925.

The Author's Book. On the Preparation of Manuscripts; On the Reading of Proofs; and On Dealing with Publishers. New York. The Macmillan Company. 1925. Paper. 73 pages.

The Practical Medicine Series. Comprising Eight Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of CHARLES L. MIX, M. D., VOLUME V. GYNECOLOGY, edited by THOMAS J. WATKINS, M. D., F. A. C. S., Professor of Gynecology, Northwestern University Medical School; OBSTETRICS, edited by JOSEPH B. DE LEE, M. D., Professor of Obstetrics, Northwestern University Medical School, with the Collaboration of J. P. GREENHILL, M. D., Adjunct Attending Obstetrician, Chicago Lying-In Hospital and Dispensary. SERIES 1924. Chicago. The Year Book Publishers, 304 South Dearborn Street, 12mo. 534 pages with illustrations. Price, \$2.00. Price of series of eight volumes, \$15.00.

Recovery Record for Use in Tuberculosis. By GERALD B. WEBB, M. D., Consulting Physician, Cragmor, Glockner, and Sunnyrest Sanatoria; President, Colorado School of Tuberculosis, Colorado Springs, Col., and CHARLES T. RYDER, M. D., of the Cragmor and Glockner Sanatoria. Second edition, revised. Paul B. Hoeber, Inc., New York. 1925. 80 pages and about 100 chart sheets. 12 mo. Cloth. Price, \$2.00.

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Editorial

Diet.

Fundamentally, growth and nutrition of the body depend on protein, carbohydrate and fat in diet. The gross food is made up of these essentials and it is the physiologic duty or function of the alimentary tract, and its accessory organs, to convert the grosser forms into assimilable elements. The process of conversion of protein, carbohydrate and fat from the whole food into blood food is digestion.

The process of digestion, in the intestinal tract, converts these food factors into blood and lymph food and, as such, they are conveyed to muscle and other tissue of the body where final utilization of them is made. In this phase of the body-processes we meet metabolism. Protein is used for the replacement and construction of the protein-body. Carbohydrates and fats are used by cell structures in the production of body heat and energy. Crudely stated, and generally, the chief functions of food, as divided into these main considerations are then accomplished.

The balanced ration, containing sufficient calories to furnish each kilogram of body weight with a caloric maintenance of, say, 35 calories daily so arranged that each kilogram of tissue may get $\frac{3}{4}$ to 1 gram of protein, 1 to $1\frac{1}{2}$ grams of fat and 4 to 5 grams of carbohydrates, is taken as a fair expression of the dietary needs of an adult. So, if a body weighs, say 70 kilograms, 2,500 calories is a fair maintenance ration under little exercise. This may permit, roughly speaking, 280 grams of carbohydrates furnishing approximately

1,120 calories; 90 grams of protein, giving about 440 calories, 110 grams of fat, giving 990 calories, which totals about 2,500 calories. These figures are most general, but they represent a method of practical procedure and carry the point of our comment.

Now, although the ration or diet of the body is balanced; although calories adequate to maintain weight, to furnish energy and sustain normal body temperature are given, on this so-called balanced ration, the body will not grow and function normally; the body on this calculated diet will show evidence of serious maladies, it will die, unless other considerations are applied, because there are other important factors that enter into the maintenance of a growing or working body. If these factors are not incorporated in the diet, deficiency disease and death of the body ensue. These factors are biologic and the nature of them is still a matter of investigation. They have been given the name, "vitamins," so-called because of a supposed relation to amino-acids, although there is no evidence to show any relation to amino-acids or ammonia. Funk gave these accessory food substances the name of vitamins, and McCollum and Kennedy divided these substances into groups of fat soluble A, and water soluble B in order to differentiate the two types. These substances appear to be food complexes that are necessary for all living cells.

It is not possible in this editorial comment to recite the experimental history, but it is a chapter of vivid scientific interest, and worth re-reading. This discovery of an unknown group of food elements that, in addition to proteins, carbohydrates and fats, are necessary in animal diet was a distinct advance in our dietary knowledge.

Fat soluble A is needed in all diets and yet it is not abundantly distributed in natural food. The fat of milk and the yolk of egg contain it in greatest degree, while in such glandular organs as the liver and kidneys, and in such plants as lettuce, cabbage, spinach, celery, etc., it is found, but in seed-foods it is found in very small amounts. Fat soluble A is almost entirely wanting in bolted flour, corn-meal, polished rice, starch-food, glucose, cane sugar and milk sugar. It is not in vegetable oils. When this vitamin is entirely absent from the diet a growth-promoting fat is wanting and the body fails to attain growth; then there is

developed also destructive disease of the eyes, xerophthalmia.

With water soluble B, we are not so embarrassed because it is found abundantly in natural foods. It is in cereal grains and peas, beans, leaf vegetables as cabbage, lettuce, spinach, parsley, celery, etc., in animal tissue; in milk and in egg yolk, but it is not found in butter fat or vegetable fats. The foods which do not possess water soluble B are polished rice, starches, sugars and syrups, fats and oils. The absence of water soluble B produces beri beri or multiple neuritis, so common among people of the Orient who depend for food on polished rice and fish. Without the water soluble B, although fat soluble A is present, the animal fails to grow, quickly developing polyneuritis and paralysis. The disease is easily averted by the addition of adequate food containing water soluble B.

So, scurvy has been given the rating of a deficiency disease. It was formerly common among sailors who had subsisted on salt meat and sea-biscuits. It showed itself in production of changes in the fine capillaries, and by occurrences of hemorrhages from mucous membranes, by anemia and weakness. This disease entity is relieved by another undetermined vitamin-element, known as the anti-scorbutic substance which is found in fresh vegetables, limes, lemons and orange juice.

Besides there is yet another consideration in diet which should be borne in mind, because much physiologic function of fluids and growth depend upon it. The mineral content of food must be adequate. Food must contain sodium, potassium, calcium, magnesium, chlorine, iodine, sulphur, phosphorus and iron. From the water supply alone minerals cannot be adequately obtained or supplied; if the diet is made up of cereal-food (flour and corn) the diet is not rich enough in mineral. As much as 20 to 30 per cent of solid ration, says one author, should come from leafy plants. Meats and seeds are deficient in mineral matter.

The relation between diet and disease is, therefore, very close. If the absence of fat soluble A gives an animal such a miserable and dreadful disease of the eyes, and, if the absence of water soluble B gives the body such disabling diseases as beri beri and pellegra: and if the absence of the anti-scorbutic element, gives the symptoms of scurvy, it is reasonable to sup-

pose that these symptoms, often unexplained, are exhibited in a body wanting in an adequate supply of these vital food substances. In other words, it is probable that much physical ill-being results from a diet too scant in vitamins. To say it another way, may it not be true that there are invisible deficiency-disease symptoms mixed with other symptomatology which physicians are not interpreting? If rickets, scurvy, pellagra are the late pathological changes of vitamin-starved bodies, well-being, fitness, efficiency, growth and longevity may all be below normal under a life-long vitamin-weak-diet. If this is true, and if important elements are to be found in the products of the cow, the hen and the vegetable garden, why should not a country-wide propaganda be begun to disseminate these fundamental and essential food-facts to the people? Bread, after all, is not the "staff of life." Bread, made of bolted flour, in spite of the fact that, with potatoes and rice and sweets together, it is the source of much of the blood sugar which furnishes a quickly usable fuel for combustion in the tissues, producing the body heat and energy, is only a very small part of the diet. It is important and ranks first in importance, but it is not the only thing. -

Someone has suggested that the Southern States have a peculiar dietary problem. The problem is easy of solution, if proper agencies take up the problem of explaining its great simplicity and ease of solution in the South. There would be no pellagra problem in the South, if the man with the hoe would work the vegetable garden and eat of the great variety of its fruit; drink milk; eat eggs along with his bread, butter and molasses. So it is with disease. The fight against tuberculosis is therapeutically one of feeding with balanced ration the deficiency of a debilitated body. A high mineralized and fat diet of easily digestible food stuffs, balanced in relation to caloric need of malnutrition and underweight, will, with fresh air, sunshine and rest do much for the calcification of tubercular foci wherever located in the body. On this diet of milk, eggs and leafy vegetables with a blood enriched with a high sugar content by carbohydrates and a protein intake adequate to maintaining a nitrogen balance; and a high fat diet of such proportion as to favor additional body weight over normal by 10 to 20 per cent, we should have a reconstruction in the tuberculous body

which should arrest its progress in a large percentage of cases.

Likewise in diabetes, where the degeneration of the Island of Langerhans has diminished normal insulin manufacture, the dietary management of the crippled carbohydrate machinery approaches near to being a solved problem in internal medicine. Certainly the knowledge we possess of the carbohydrate values in food stuffs and the methods of discovering the carbohydrate tolerance in diabetes, also the proper requirements of protein and fat adjustment to the caloric needs of each kilogram of body weight, makes the handling of diet in disease a most important consideration on the part of the profession.

In closing, to bread and milk, we must add meat, yolk of eggs, vegetables and fruit. What is known by doctors of today as the 5 per cent, 10 per cent, and 15 per cent vegetables and fruits, milk, meat and eggs together with bread, makes a well rounded diet which should be easily digested if properly prepared, cooked, and eaten in proper amounts each day.

A. G. B.

Making a Legislature.

Now is the time to "make up" the personnel of the next legislature of Virginia. This "make up" can only be accomplished from the material that is available on election day. The doctors of Virginia can materially raise the standard of excellence of candidates for the coming election by attending to certain practical matters; by bringing into the field of candidates citizens of the highest type.

The physicians of the state should constitute themselves into committees for the selecting of candidates; and, then, make every possible effort to induce the selected citizens to submit themselves to the people for election. In other words, to give a concrete suggestion, the physicians of a county or community may well meet in caucus; discuss the ideal type of man or woman; look over the available ones; induce them to run; then support in every possible way their candidacy.

What sort of citizen should doctors want in the legislature? Character should be the first requirement. There should be no question of the sterling character of the proposed legislator. His honesty, his truth, his fealty to high purpose, his unswerving determination to do the right as he sees it, should be well known factors and qualifications of his daily life.

Character should be a strong and proven quality in any man or woman who is to be asked to run for the Virginia legislature. With such a man one need entertain no trepidation that any proposition coming up in the matter of public welfare would fail to receive fair and honest consideration. So, the physician's caucus should think over the strongest citizen of highest character and endeavor to bring out such an one as a candidate.

Intelligence should next be considered. The power to think straight; the ability to see the best; the reason to separate fact from fiction; the type of mind that reasons from premise to conclusion with accuracy, and the gift of constructive imagination; the power to think in terms of statesmanship and public welfare; and the sense to champion the wiser way, are a few of the intellectual qualities the candidate should possess.

These high mental qualities are to be found in every community. Among the citizenry of Virginia there is intelligence of choice, intelligence of action, and intelligence of life. In these qualities the legislature of Virginia could be improved. Virginia needs the highest type of intelligence in the making of her laws. Virginia, while possessed of much that is great in the past, does not stand foremost today. Virginia, with what she possesses, in the quality of its people, the purity of its breed and lineage, in the opportunities offered in its material wealth, in its natural possessions and position, is backward: the state needs in its legislature a standard of intelligence of the higher order. The doctors of Virginia, in every county and community, are in a position to know and to choose as candidates for election persons of highest character and proven intelligence. Having selected such persons use every persuasion to make them run.

Let us have in the legislature men and women who have shown in their own personal affairs the power to succeed. Every community, every county has its successful citizens. This term applies to the successful farmer, the successful merchant, the successful preacher, the successful lawyer, the successful teacher, the successful doctor. Let us have legislative candidates who have shown enough of the qualities of grit, enterprise, intelligence and character to succeed in private undertakings. The legislature is no place for experiment. Men who make laws for a state should be wise men; men

who have made wise decisions in other fields, in their own lives, and have striven and succeeded in putting their decisions across. In every county of this state there are such men, and the doctors know who they are. They may be waiting to be asked to serve; needing only to be urged. If a group of doctor-citizens should call on them and ask them to run, no doubt, the "successful man" in legislature could be an accomplished fact.

With character, intelligence and proven qualities of industry and determination that make for success in life, the candidate should make an active and relentless study of the needs of our state and go on the hustings to seek election. The doctors may easily and quickly inform such legislators, when elected or before their candidacy, of the need of the enactment of laws supporting the regulation of medicine, proper health measures, need of the equalization of taxes, need of good roads and many other big things that are today crying for solution at our hands.

A. G. B.

Proposing a Diet for the South.

The growth, efficiency, longevity, temper and endurance of a people may rest upon its life-plan of diet; to say nothing of its resistance to diseases of bacterial origin and such diseases as pellagra, scurvy, rickets and intermediate conditions, which while yet unknown are quite probable.

It has been observed by McCollum that people of the tropics and the Orient, who employ leaves of plants to correct dietary deficiency offered in cereal diet, are small of stature, have a short span of life and are of less productivity than people who use liberal amounts of milk and dairy products as protective food. Europeans and North Americans, who are liberal users of milk, are found to be of larger size, longer life and more reproductive by comparison. If these broad observations are true, the problem of nation-feeding assumes the proportions of a nationally important question.

The deficiency of a considerable proportion of the poorer classes of the South, both among the blacks and the whites, makes it important to think in terms of food requirements in the light of available food stuffs in this section of the country.

Biological investigations conducted in re-

cent years have produced some striking facts concerning food. Happily these facts render the solution of the problem more easy. The accessibility of these new found food requirements favor the Southern people. The use of milk will correct much in the diet of almost any person. A quart of milk a day, in addition to the chemical factors of carbohydrates, protein, fats and minerals, affords protection from deficiency of fat soluble A vitamins. The probability of milk in the diet of a people assuming the importance of a determining factor in the life span, in the stature and powers of reproduction, is one worthy of widespread utilization. Cow's milk and dairy products in general are certainly available in a country of such favorable climatic and agricultural conditions as are found in the South. Here corn, hay and the products of cotton seed are grown without much expenditure of labor, making dairying on a large or small scale an easy proposition. The knowledge and practice of milking under hygienic conditions, the building of clean barns, properly lighted and ventilated, of cleanliness in milking and in handling the milk, of cooling the milk to the proper temperature and many other considerations of like nature, add greatly to the wholesomeness of milk as a food.

The use of milk as a regular article of diet may render the problem of the digestion of cow's milk one needing consideration. Everyone cannot digest milk with equal ease. Many suffer considerable and evident gastric and intestinal distress after drinking milk. For this reason some patients and normal people dislike and will not use milk. The digestion of the milk is important, for without digestion it is not serviceable as a food to the degree contemplated in our advocating it as an item of diet for a nation or people. The cause of this set-back to the idea of milk drinking is largely due to poor stomach digestion. The stomach with abnormal acid-pepsin-rennin secretion, and its impairment of motor activity and power of evacuation, is really a poor digestive organ for raw cow's milk. Often the action of the gastric secretion masses the milk into a curd which renders it impossible of even partial digestion or prompt evacuation into the alkaline secretion of the liver, pancreas, and intestines where its several elements are broken up into usable forms. This produces costiveness, gas and toxic symptoms, which, naturally

give such persons a distaste for milk as a part of the diet. So, for the adult who needs milk as a part of his diet, it becomes much the same problem that we encounter in infant feeding. Modification of the raw milk is needed for the ailing stomach of the adult, as it is for the infant, in order to secure the full benefits without the ill-effects of milk feeding. The well known principle of modifying milk by the addition of carbohydrate bodies and by use of gelatin makes the needed handling of this digestive problem rather more easy of solution. After all, milk can be modified to agree with any digestion provided enough care is taken to fully investigate the stomach and its secretory and motor functions.

Eggs too are a staple item of food in the South. They are well known as possessing fat and protein, giving caloric value. The egg possesses in its yolk the protective vitamin of fat soluble A which, with milk, forms a protection to the bread, corn-meal, rice and potato diet of the South. The egg is a food product which is very easily within reach of every country home, no matter how poor and impecunious it may be. In the benign climate of the Southern states with chicken feed so easy of cultivation, and the little care which growing chickens demand, the availability of eggs in connection with the diet is quite obvious. Under modern methods of refrigeration, eggs may be stored for some length of time and still retain their freshness, making them lend themselves more readily to transportation and thus placing them within reach of everyone.

The quickness with which the stomach evacuates soft-boiled, coddled and raw eggs makes it a food product of remarkable usefulness because of high potentiality in food calories as well as its vitamin factor. Its 6 grams of fat and 6 grams of protein give it a caloric value of approximately 75 calories.

Next we may turn to another group of foods which are important, and at the same time especially available in the South. We refer to leafy plants, vegetables and fruits. These possess, in addition to the carbohydrate, protein, and mineral values, a biological factor of great use to the human body. These foods furnish water soluble B, another protective quality, possibly warding off known and un-

known abnormalities. It is probable that lowered vitality, efficiency, growth and longevity are results of an inadequate diet, and serious, pathological changes result with a total, absence of these food factors for any length of time. In what country may one raise more easily than in the South such vegetables as: lettuce, cabbage, cucumbers, spinach, kale, turnips, asparagus, tomatoes, celery, snap-beans, cauliflower, egg-plant, okra, radishes, onions, carrots, beets, parsnips, butter-beans, dandelion, watercress, squash, green corn, shell-beans; or fruits as, cherries, grapefruit, lemons, oranges, bananas, strawberries, gooseberries, pineapple, pears, apricots, huckleberries, plums, currants, and also peanuts.

Many of the food products are available from the garden after a few month's cultivation. They may be native grown or are accessible in the neighborhood stores at small prices, if garden space is not possible.

The South has the climate and the natural soil in which these products attain greatest abundance in quality as well as quantity. There is then, little excuse for any Southern person with a small garden space available not to include in his diet, or the diet of growing children, the water soluble B and anti-scorbutic vitamins.

Meat is also a useful food and may be easily procured in the South. Chicken and fowls grown upon the small chicken yard and the lamb and beef cuts that the climate and grass conditions of the South can readily produce are available. Sea-food in the form of fish, oysters and crabs, particularly abundant along the South Atlantic coastal region, furnish the protein in useful form and should be utilized by a thrifty and sensible people without undue cost.

To these staple foods we may add flour, which, while not so desirable because of its bolted state, is manufactured and placed in stores the country over by the great flour manufacturers of the Middle West. Bread is still an important food. From this bread, the vitamin content of the grain has been sifted away. Corn-meal also furnishes a group of useful breads.

News Notes

Rules for Making Program for Medical Society of Virginia.

In accordance with resolution adopted at the Staunton meeting of the Medical Society of Virginia, the Program Committee of the Society met on November 10, 1924, to formulate plans for making the program for the annual meetings. This resolution was published in the December, 1924, issue of the journal.

It was decided to limit the number of papers to be read at the meeting so that it would not be necessary for the Society to meet in sections. Since this meeting, it has been decided by the Committee that a slight change should be made in the resolution, in order to give all members, wherever located, equal opportunities to have their titles among the first fifty titles to be received.

The resolution adopted by the Program Committee, as amended, should read:

"1. No title shall be accepted for the program prior to two months before date of the annual meeting. As provided in the By-Laws, an announcement concerning the annual meeting and request for titles of papers shall be mailed by the Secretary-Treasurer to all members of the Society.

"2. On and after the day which would be two months prior to the first day of the annual meeting, titles will be received until fifty are in hand. In the fifty titles referred to, provision shall be made for the papers of the invited guests and papers on the subject of general discussion.

"3. After the fifty titles are received, the Program Committee shall arrange and classify them according to related subjects."

ALEXANDER G. BROWN, JR., Chairman,
A. L. GRAY,
P. W. HOWLE,
E. L. KENDIG,
B. R. TUCKER,

Committee.

This year, August the 13th (two months before first day of the Richmond meeting) will be the first day on which the Secretary-Treasurer of the Society may receive titles for the 1925 meeting.

It is therefore requested that members time the sending of their titles so that they may reach the Society's office, 104½ West Grace Street, Richmond, on the 13th of August, or as soon thereafter as possible.

The Atlantic City Meeting of the American Medical Association.

The dates for this meeting, May 25-29, are close at hand. No more delightful place could have been selected, to combine business and

pleasure, than this "playground of the World," Atlantic City. Accommodations are ample and the excellent program which has been prepared, in addition to the attractions of the place, will draw a large gathering of physicians and their families. A one and one-half fare rate has been granted by the railroads, which fact will enable doctors to take their vacation at this time at a reduced cost. And, too, "King Automobile" will be much in evidence, as the roads leading to Atlantic City are good, and this means of transportation will offer the advantage of many side trips.

Several non-affiliated associations will take advantage of this time to hold their meetings, thus enabling their members to attend both meetings. Alumni of a number of colleges are planning "get-together" dinners and luncheons. Scientific and technical exhibits will provide much of interest.

Dr. William Allen Pusey, Chicago, is president, and Dr. William D. Haggard, Nashville, Tenn., president-elect. Dr. Clarence L. Andrews, 1801 Pacific Avenue, Atlantic City, N. J., is chairman of the local committee of arrangements.

Fellows of the A. M. A. should carry with them their 1925 Fellowship cards in that Association, and members of the State Societies, not fellows of the A. M. A., should take cards from their State organizations and present these in registering. The Bureau of Registration will be located at the Boardwalk end of the Steel Pier, the entire length of which will be devoted exclusively to the meetings and exhibits of the American Medical Association.

Virginia will have two delegates this year in the House of Delegates: Dr. J. Allison Hodges, Richmond, and Dr. Southgate Leigh, Norfolk.

The American Psychiatric Association

Is holding its eighty-first annual meeting at Hotel Jefferson, Richmond, Va., May 12-15, under the presidency of Dr. William A. White, of Washington, D. C. Preceding the President's reception on Wednesday evening, the 13th, the annual address will be given by Clarence Darrow, Esq., of the Chicago Bar (nationally known from his connection with the Leopold-Loeb case). The address will be at the City Auditorium and will be open to the public. The title of Mr. Darrow's address will be "The Sane Treatment of Crime." The following day, the visitors will be taken on a trip to Williamsburg, Jamestown and York-

town. A picnic luncheon will be served on the grounds of the Eastern State Hospital at Williamsburg.

An unusually large attendance is expected at this meeting as it immediately follows the meeting of the National Association for the Study of Epilepsy, in Richmond, and the meeting of the National Association for the Care and Study of the Feeble-minded in Raleigh, N. C., and most of the doctors at that meeting will also come to Richmond for this occasion. Dr. James K. Hall, Richmond, is chairman of the committee on arrangements, and Dr. George W. Brown, Williamsburg, is vice-chairman.

The Southern Public Health Laboratory Association

Held its fifth annual conference in Memphis, Tenn., April 9-11, Mr. Aubrey H. Straus, of the Virginia State Board Laboratories, presiding. The scientific and social features were much enjoyed by those in attendance. Feeling that the time has come when some check must be put upon indiscriminate laboratory work, and that the public and the medical profession must be protected from incompetent work by inadequately trained persons, the Association passed the following resolution. "Resolved that the Southern Public Health Laboratory Association approve the principle that all laboratories making public health examinations shall be approved by the State Board of Health."

The following officers were elected for the ensuing year: Chairman, L. C. Havens, Montgomery, Ala.; vice-chairman, T. W. Kemerer, Jackson, Miss.; secretary-treasurer, B. L. Arms, Jacksonville, Fla.

Following this meeting, Mr. Straus returned to Johns Hopkins University, Baltimore, where he is taking special studies in the School of Hygiene and Public Health. He will return to Richmond the first of June.

Dr. Greer Baughman

Has been elected a member of the board of directors of the Richmond Rotary Club, for the ensuing year.

Dr. Douglas Vander Hoof,

Richmond, was a recent visitor at the Princess Anne Country Club at Virginia Beach.

Dr. John W. Winston

Has returned to his home in Norfolk, after a visit to relatives in Bowling Green, Va.

Dr. and Mrs. J. P. Trent,

Farmville, Va., in April attended the marriage of the doctor's sister in Washington, D. C. Married.

Dr. James Raymond Gorman, of Lynchburg, Va., and Miss Mary Woodville Ferguson, daughter of Dr. and Mrs. James H. Ferguson, of Clifton Station, Va., April 15.

Dr. Harry Barton Hinchman and Miss Regina Ladd Dickinson, both of Richmond, Va., April 22.

The Medical Society of the State of North Carolina

Held its annual meeting at Pinehurst, April 28-30, with one of the largest meetings in point of attendance in its history. Dr. Albert Anderson, Raleigh, presided. It was decided to hold the next meeting in Wilmington. Dr. W. de B. MacNider, Chapel Hill, was elected president, and Dr. L. B. McBrayer, Southern Pines, was re-elected secretary-treasurer.

Dr. Watson S. Rankin, who has been secretary of the State Board of Health of North Carolina for a number of years, tendered his resignation, effective June 1, to accept a position with the Duke Foundation at Durham, N. C. His successor will be named at a later date.

The Alleghany-Bath County Medical Society,

At its annual meeting in January, elected Dr. J. W. Wallace, Covington, president; Dr. Lanier D. Pole, Hot Springs, vice-president; Dr. R. P. Hawkins, Clifton Forge, secretary; and Dr. W. M. Revercomb, Clifton Forge, treasurer. This is an active society which meets bi-monthly, the last meeting being at Hot Springs, May 8.

Gorgas Memorial Institute.

Interest in the Gorgas Memorial Institute of Tropical and Preventive Medicine continues unabated, and it is now announced that the American Dental Association has pledged its support to this most worthy project. This seems most appropriate in view of the close relationship which exists between the medical and dental professions.

Virginia doctors who are members of the Governing Committee are: Dr. Martin D. Delaney, Alexandria; Drs. Israel Brown, M. P. Doyle, Charles R. Grandy, Lomax Gwathmey, C. Lydon Harrell, Sarah Leigh Clinic, W. B. Martin, H. L. Myers, R. L. Payne, Frank P. Smart, and E. C. S. Taliaferro, of Norfolk;

Drs. Paul V. Anderson, Robert C. Bryan, William T. Graham, Stuart McGuire, Garnett Nelson, Charles R. Robins, Beverley R. Tucker, Douglas VanderHoof, and Robert H. Wright, of Richmond; and Dr. P. W. Boyd, Winchester.

Dr. Carroll H. Fowlkes

Has returned to his home in Richmond, after spending sometime on an ocean voyage. While he was away, Mrs. Fowlkes and their two children visited relatives in South Hill, Va.

Dr. and Mrs. J. N. Elder

Returned to their home in Hopewell, Va., recently, after spending about a month at Hot Springs, Ark.

Dr. Austin I. Dodson,

Richmond, Va., has been appointed captain in the medical corps, attached to the 246th coast artillery, Virginia National Guard, succeeding Captain E. T. Trice, Richmond, who was promoted.

A New Hospital

Will shortly be opened at Albemarle, N. C., at a completed cost of \$100,000. Dr. Julius C. Hall, of that place, has been selected as president of the hospital, and Dr. Lucius V. Dunlap as secretary-treasurer.

Dr. W. Nelson Mercer,

Formerly of Richmond, who has been connected with the U. S. Veteran's Bureau at Saranac Lake, N. Y., since the first of the year, has been transferred to U. S. Veteran's Hospital No. 27, at Alexandria, Louisiana. His work is limited to tuberculosis.

Dr. and Mrs. John Randolph,

Arvonias, Va., were among those who attended the reception and exercises held at Monticello, April 13th, the anniversary of Jefferson's birthday.

Child Management,

The first publication of this kind issued by the Children's Bureau, Washington, D. C., gives the average parent, in simple and practical form, the results of modern research in the mental hygiene field. It was written by Dr. D. A. Thom, of Boston, an authority on mental hygiene, and in addition to giving much practical and sound advice, lists a number of "Don'ts" for parents, which should furnish food for thought.

Dr. J. Minor Holloway,

Of the Graduate School of Medicine, University of Pennsylvania, Philadelphia, spent the Easter holidays with his family in Port Royal, Virginia.

Dr. and Mrs. B. F. Noland,

Spencer, Va., were recently guests of friends in Richmond.

Protecting Sight of School Children.

In a recent study of the condition of eyes of more than 4,000,000 public school children, it was found that approximately 12 per cent of the school children of America have such seriously defective vision as to be handicapped in their work. In an effort to remedy conditions in the school room which may have a harmful effect on the eyes of children, the National Committee for the Prevention of Blindness, of New York City, has prepared a non-technical summary of the code of lighting school buildings, which it hopes to place in the hands of all school teachers in the country. This communication not only tells the teachers of the principles of correct lighting, but deals with other matters in the school room which have important bearings on the lighting condition within the room and on the use and abuse of children's eyes.

Motor Tourists' Camp in New York City.

Camp New York, a new camp for automobile tourists established well within the city limits of New York City, was officially opened May 2nd, with befitting civic ceremonies. It is but thirty minutes from Times Square by rapid transit with a station directly at the camp entrance. Its forty beautiful acres of high ground are situated at the junction of Boston Post road and Baychester Avenue, with ample room for a thousand cars, or a daily accommodation for five thousand people.

Developed by a group of experts, nationally known in motor touring circles, nothing in equipment has been overlooked in this camp to add to the comforts of the visitor. The camp overlooks Long Island Sound, and Pelham Bay is but a mile distant and famous for its salt water bathing, boating and fishing. Bronx Park with its renowned Zoological Gardens and Botanical Gardens is near by.

The establishment of Camp New York now enables the visiting motorist to economically visit New York, the Wonder City of the World, and with his entire family inspect its museums,

parks, libraries and historical places of interest. It assures him comfortable, safe and hygienic living conditions with police protection for his family and car at no extra cost, aside from the small daily camp fee.

The West Virginia State Medical Association

Is to hold its annual meeting in Bluefield, June 9, 10, 11 and 12, under the presidency of Dr. G. D. Jeffers, of Parkersburg. Mr. Sterrett O. Neale, Charleston, the newly appointed executive secretary, will gladly give information about this meeting to those requesting it.

The U. S. Civil Service Commission,

Washington, D. C., announces open competitive examination for associate milk specialist, receipt of applications to close June 2nd; also for dietitian, applications to be rated as received until June 30th. Detailed information about these may be received from above named Commission or the secretary of the board of U. S. civil service examiners at the post-office or customhouse in any city.

Dr. William F. Drewry,

Petersburg, Va., was recently notified of his election to membership in the National Committee for Mental Hygiene. This committee works with state societies and committees for the conservation of mental health, to help prevent nervous disorders and defects, and to raise the standards of care and treatment for those suffering from any of these disorders.

It is a pleasure to note that, in spite of his duties as City Manager of Petersburg, Dr. Drewry continues his interest in medical affairs.

The Medical Women's National Association

Will have its annual meeting in Atlantic City, May 25-26, with headquarters at Hotel Marlborough-Blenheim. Dr. Katherine C. Manion, Port Huron, Mich., is president, and Dr. Blanche M. Haines, Lansing, Mich., secretary.

Venereal Disease Bulletin Published.

A bulletin has recently been published by the Bureau of the Public Health Service, reporting the "Transactions of the Conference of Venereal Disease Control Officers of the State Health Departments and the U. S. Public Health Service," held at Hot Springs, Ark., last December. The greater part of this publication is made up of the report of a special committee appointed to make a study of the

methods of diagnosis, treatment and policies in effect in the various venereal disease clinics throughout the country. This report contains considerable material which is of interest and assistance to the general practitioner as well as the specialist in urology or dermatology. Interested readers may secure this publication without cost by addressing a request to the U. S. Public Health Service, Washington, D. C., mentioning V. D. Bulletin No. 77.

American Board of Otolaryngology.

The next examination conducted by the American Board of Otolaryngology will be held at the Ambassador Hotel, Atlantic City, on Tuesday, May 29th, at 9 A. M.

Application blanks may be obtained from Dr. H. W. Loeb, Secretary, 1402 South Grand Boulevard, St. Louis, Missouri.

Dr. Robert S. Kyle,

Who graduated from Medical College of Virginia in 1923 and has been with Lewis-Gale Hospital, Roanoke, Va., since then, has located at Galax, Va.

Doctors Delegates to State Democratic Committee.

Drs. F. S. Hope, Portsmouth, E. L. Kendig, Victoria, and W. J. Strother, Culpeper, were among those who attended the State Democratic Committee in Richmond, April 21.

Dr. S. Palmer Hileman,

After acting as an assistant physician at Catawba Sanatorium, Va., has located at Goshen, Va., where he will continue to practice his profession.

Dr. Robert F. Gillespie,

Who has been located at Splashdam, Va., expects to locate at Wilder, Va., the first of June.

Dr. Hundley Has Unusual Experience.

Dr. and Mrs. M. E. Hundley, of Martinsville, Va., have returned home after a pleasant vacation spent at Hamilton, Bermuda.

The usual uneventful character of the voyage from New York to Bermuda was broken by the extreme illness of the purser. As he failed to respond to treatment, the ship's surgeon called Dr. Hundley in consultation and they both agreed that an immediate operation was necessary. The captain of the ship ordered necessary preparations to be made and had the ship stopped while Dr. Hundley and the ship's surgeon performed the operation. A couple of assistants and a trained nurse were secured from among the passengers and

all helped as they could. Upon arrival of the ship at Hamilton, the patient was transferred to a hospital and, at last accounts, was progressing satisfactorily.

Dr. John M. Bishop,

Who accepted an internship at Jefferson Hospital, Roanoke, Va., upon his graduation from Medical College of Virginia, last year, located at Inman, Va., the first of April.

An American Health Congress.

In order to give health workers from every part of the country a bird's-eye view of the public health movement in its broadest aspects, the National Health Council, at 370 Seventh Avenue, New York, has planned for an American Health Congress to be held at Atlantic City, N. J., during the week of May 17, 1926. Leading authorities on each phase of the public health movement will present the latest and most authoritative findings and programs for the solution of these problems. The Steel Pier has been engaged for headquarters and meetings will be held there and at nearby hotels on the boardwalk. Part of the space on the Steel Pier will be used for commercial and educational exhibits, which will be required to conform to the high standards of such a meeting.

Dr. P. K. Graybill,

After spending the winter in Phoenix, Arizona, expects to return to his home at Fincastle, Va., about the middle of this month.

The Virginia State Board of Pharmacy,

At its annual meeting in Richmond, the last of April, re-elected the following officers for the ensuing year: President, W. L. Lyle, of Bedford; vice-president, H. C. Littlejohn, of Leesburg; and secretary-treasurer, A. L. I. Winne, of Richmond.

Dr. W. C. Rosser, Rustburg, was granted a physician's permit to practice pharmacy.

The Warren-Rappahannock-Page County Society

Held its last regular meeting in Front Royal, Va., April 28, Dr. James G. Brown, of Woodville, presiding. Dr. J. R. Boldridge, of Hazel River, was at the secretary's desk. Several interesting papers were read by members and an address was given by Dr. W. J. Mallory, of Washington, D. C.

Dr. R. L. Page, Batesville, councilor for the Seventh Congressional District, of the Medical Society of Virginia, by invitation, gave a talk in which he stressed the importance of having

all eligible doctors in every county join their county and State societies.

Gift of \$10,000 to Aid Research Work.

It is announced that Dr. J. Shelton Horsley, Richmond, has made a gift of \$10,000 to the University of Virginia, for the establishment of a prize based on research work for a thesis in surgery or in allied medical sciences having a relationship to the development of surgery. The prize is open for competition to graduates of the medical department of the University who have not been in the field of active work for more than thirty years.

Dr. T. B. Ely,

Formerly of Jonesville, Va., is now located in Roanoke, Va., with offices in MacBain Building.

The American Proctologic Society

Will hold its annual meeting at Atlantic City, N. J., May 25 and 26, at the time of the meeting of the American Medical Association. Dr. Frank C. Yeomans, of New York, is president, and Dr. J. F. Montague, of New York, secretary-treasurer.

Medical College Commencements Near.

Dates selected for the final exercises of Virginia's two medical schools are: May 31 to June 2 for the Medical College of Virginia; and June 13 to 15 for the Department of Medicine of the University of Virginia. Keep young by attending these annual reunions.

Dr. M. L. Dalton,

Roanoke, Va., has moved his office from MacBain Building to St. Charles Hospital, that city, where he will confine his work to internal medicine. Dr. Dalton has recently been taking post-graduate work in internal medicine at the New York Post-Graduate Medical School and Hospital.

The American Society of Clinical Pathologists

Will hold its annual meeting in Philadelphia, May 21-23, under the presidency of Dr. John A. Kolmer, of that city. The secretary is Dr. Ward Burdick of Denver, Colorado.

Dr. Irving S. Barksdale,

Son of Dr. George E. Barksdale and formerly of Richmond, Va., has been appointed health commissioner of Greenville, S. C., and entered upon his duties there on the first of May. Dr. Barksdale graduated from Yale University School of Medicine in 1923 and has

recently been connected with the department of physiology of the Medical College of the State of South Carolina, at Charleston.

A Clinic for Crippled Children

Was recently held in Covington, Va., under the auspices of the Alleghany-Bath County Medical Society. Dr. Bernard H. Kyle, orthopedic surgeon of Lynchburg, was in charge of the work.

Dr. M. H. Eames,

Lanexa, Va., was a recent visitor in this city.

Dr. Frederick H. Baetjer,

Baltimore, recently underwent an operation for the removal of an infected finger which had been burnt in X-ray work. Dr. Baetjer has now lost eight fingers and an eye as the result of these burns.

A Health Magazine for Vacation.

In planning for the summer vacation, much helpful information may be obtained from "*Hygeia*." It brings you the real truth about health and is a journal of individual and community health for the layman. *Hygeia* is published by the American Medical Association, in Chicago, and the price is only three dollars a year—less than what you pay for many popular magazines. Get a copy and judge of it for yourself.

Dr. E. M. Wilkinson,

Who graduated from Medical College of Virginia in 1923 and later served as intern at Stuart Circle Hospital, Richmond, is now located at Dan, West Virginia.

Tetanus From Vaccination Dressings.

The U. S. Public Health Service issues a warning to the medical profession and to the public against the use of bunion pads as a dressing in vaccination against smallpox. The use of these pads seems to be more common than would be supposed and several fatal cases of tetanus following their use have recently been reported in the United States. Laboratory tests have demonstrated the presence of tetanus spores in bunion pads from the same source as those which were associated with tetanus cases.

The Public Health Service deprecates the use of any kind of shield as a vaccination dressing, as the use of a shield tends to prevent evaporation, to retain heat, moisture, or discharges, with a consequent softening of the vesicle, to obstruct lymphatic drainage, to pro-

duce hyperemia, and to create conditions apparently favorable for the development of bacterial invasion, especially by the tetanus organism.

The smallest single site insertion compatible with a successful take and with no immediate dressing whatever is believed to be the best method of vaccination in the majority of cases.

Opportunities for Graduate Medical Study in New York.

The Committee on Medical Education of The New York Academy of Medicine has prepared a series of synopses of approved opportunities for graduate medical study in New York City which will soon be published for distribution. The synopses cover dermatology and syphilology, obstetrics and gynecology, internal medicine, neurology and psychiatry, ophthalmology, oto-laryngology, pediatrics, surgery, urology, and orthopedic surgery.

A Bureau of Clinical Information is maintained at the Academy of Medicine, 17 West 43rd Street, where detailed information is available regarding opportunities for graduate medical study in New York, and also in other cities of the United States and abroad. The Executive Secretary in charge of the Bureau is prepared to answer inquiries concerning ordinary internships, special internships or residencies, graduate courses in medical schools and teaching hospitals, and extension courses. Much information in regard to graduate medical work in England and on the Continent is on file.

The Bureau publishes a Daily Bulletin of Surgical Clinics which will be mailed free to visiting doctors on request. A Weekly Bulletin of Medical Clinics also is published. A book of the fixed clinics of Greater New York, with a transportation guide, has been prepared for the use of visitors whose stay in the City is limited, and is furnished without charge.

The American Congress on Internal Medicine,

At its recent meeting in Washington, D. C., elected Dr. Charles G. Jennings, of Detroit, Mich., president. Dr. Frank Smithies, of Chicago, was re-elected secretary-general.

The American College of Physicians,

At their meeting, elected Dr. Alfred Stengel, Philadelphia, president, and Dr. Frank Smithies, Chicago, secretary-general.

Johnston-Willis Hospital to Have Nurses' Home.

A nurses' home, at an estimated cost of \$75,000, is to be erected adjacent to and for the use of Johnston-Willis Hospital, Richmond, Va., during the summer, and will be ready for occupancy in the early Fall. It is stated that the building will include the most modern equipment and that two of its three floors will be devoted to a school for teaching of nurses. There will be accommodations for sixty nurses.

Dr. Alexander F. Robertson, Jr.,

Of Staunton, Va., is spending sometime in Philadelphia and from there will go to New York City and Atlantic City. He will be home about the first of June.

Dr. H. A. Dalton,

Of Galax, Va., who has been under treatment in a Roanoke, Va., hospital, is much improved and expected to resume his practice about the middle of this month.

Dr. and Mrs. J. Kennedy Corss

Have returned to their home in Newport News, Va., after a visit to Hot Springs, Ark., and French Lick Springs, Ind.

Dr. B. A. Middleton,

Of Emmerton, Va., with a party of friends, recently enjoyed a motor trip through the Valley of Virginia.

Fire at Medical College.

Early in the morning of May 3rd, fire was discovered in the dispensary building of the Medical College of Virginia, Richmond. Prompt action on the part of the fire department averted what might have been a serious fire. Loss was roughly estimated at anywhere from \$500 to \$2,000.

Whooping Cough Studies.

Whooping cough causes a greater number of deaths in Denmark than any other infectious disease. Danish physicians and scientists therefore have devoted much time to the study of this disease. Dr. Thorwald Madsen of the Danish Serotherapeutic Institute, lecturing at Harvard, said that the institute has perfected a means of establishing a diagnosis of the disease in its early stages. Its studies have also shown that after five or six weeks practically no whooping cough bacilli are found. As a result Danish children are now kept from school only four weeks after the beginning of the spasmodic cough. A whooping cough serum was found to have little preventive effect, but

vaccination was found to lighten the infection and decrease the mortality to a considerable degree.

Child Welfare Congress.

An International Congress on child welfare will meet in Geneva, August 24-28, 1925, under the auspices of the Swiss Government.

Dr. J. B. Dalton,

Of Richmond, visited relatives and friends in Roanoke, Va., for a few days in April.

Reunion and Dinner of the Medical Officers of the World War.

An attractive feature of the annual meeting of the American Medical Association at Atlantic City will be the reunion of the medical men who served their country in the Army and Navy during the World War, to renew the memories, friendships and associations of those eventful days. The Chief Surgeon of the A. E. F. will be there, and the President of the Association of Military Surgeons, Surgeon General Hugh S. Cumming, and other officers of the Association under whose auspices the meeting will be held. An effort will be made to group together those who served in the same organizations and so it is requested that reservations be made as early as possible and that comrades state in writing for them the base hospital or other medical unit to which they belonged. Write for tickets to Colonel Burt R. Shurly, Med-Res, U. S. A., 62 West Adams Avenue, Detroit, Michigan.

TIME AND PLACE: May 27th at 7 P. M. at the Ritz-Carlton Hotel, Atlantic City.

Members of the Association of Military Surgeons are requested to wear the badge of the Association.

Provisional Birth and Death Rates.

The Department of Commerce, Bureau of Census, announces that birth rates for 1924 were higher than for 1923 in sixteen of the twenty-five states from which figures are available. The highest birth rate for 1924 was 31.9 per 1,000 population, and the lowest 14.9.

Death rates for 1924 were lower than for 1923 in twenty-three of the twenty-nine states reporting. In fact, record low rates appear in thirteen states. Virginia is in this set. The highest 1924 death rate is 22.1 per 1,000 population, and the lowest 6.5.

Infant mortality rates for 1924 are generally lower than those for 1923, as only three of the

twenty-five states reporting show higher rates in 1924.

Dr. and Mrs. L. O. Snead,

Of Richmond, recently visited relatives in Halifax, Va.

Dr. Max Thorek,

Surgeon in Chief to the American Hospital of Chicago, has been made a member of the Surgical Society of Paris, France, and also a Corresponding Member of the Royal Academy of Medicine and Surgery of Torino, Italy.

The Virginia State Dental Association

Held its fifty-sixth annual meeting in Staunton, the last of April, under the presidency of Dr. A. Hume Sprinkel, of that place. Richmond was selected as the 1926 place of meeting, and the Association voted to invite the North Carolina State Dental Society to meet jointly with the Virginia Association. Dr. Harry Bear, for several years secretary of the Association, was elected its president; Dr. W. N. Hodgkin, of Warrenton, vice-president; and Dr. John Bell Williams, Richmond, secretary.

Dr. and Mrs. William Morgan Smith,

After spending the winter in Richmond, have returned to their home "Rosemont," Berryville, Va., for the summer months.

Dr. and Mrs. Claiborne T. Jones

And sons, of Petersburg, Va., spent the Easter holidays with friends in Orange, Va.

Dr. W. C. Orr,

Leesburg, Va., has been elected president of the Loudoun County Baseball League for the ensuing year.

Doctors Among Rotary Officers.

Dr. Charles E. Conrad has been elected president of the Rotary Club of Harrisonburg, Va., for the ensuing year, and Drs. James H. Deyerle and E. R. Miller new directors.

Officers of St. Leo's Hospital.

Dr. Parran Jarboe has been elected president and Dr. Ralph E. Dees vice-president of the staff of St. Leo's Hospital, Greensboro, N. C.

Colds are the Baby's Enemy.

Investigation of a group of 251 out-patient cases in the baby clinic at Mt. Sinai Hospital, New York, showed that colds and respiratory infections constituted the leading diseases. The basic causes of these ailments were frequently found to be too heavy clothing, lack

of sunlight and fresh air, and other unhygienic conditions. Over ninety per cent of the infants showed evidence of rickets.

Wanted

To buy practice in Virginia or West Virginia. Would buy office equipment or property. Reasons for leaving present location, want to locate near high school. Graduate of Medical College of Virginia. References: West Virginia State Medical Association and County Medical Society. Nothing but a good proposition considered. Answers should be sent to No. 415, care this journal. (Adv.)

Obituary

Dr. James Fulton Williams,

Of Charlottesville, Va., died at his home in that place May 1, after an illness extending over several months. He was born in Nelson County, Va., January 19, 1873, and studied medicine in Baltimore, graduating from the University of Maryland in 1899. He had been a member of the Medical Society of Virginia since 1902. He was also a Mason and an Elk. Dr. Williams was for sometime, and to the time of his death, surgeon of the Charlottesville Fire Department. He is survived by his wife and several children.

Dr. John Diedrich Moritz,

Of Charlottesville, Va., died at his home in that place April 24. He was born in Baltimore, Md., in 1875, and studied medicine at the University of Maryland, from which he graduated in 1904 and later studied in Philadelphia and Chicago. Owing to failing health, Dr. Moritz gave up practice in Baltimore and moved to Albemarle County, Va., near Cismont, in 1907. After living there about twelve years, he returned to Baltimore, but, after a short time there, went to Charlottesville and worked in connection with the orthopedic department of University Hospital. He was a member of the Medical Society of Virginia. His wife survives him.

Dr. Carl Meach McCuiston,

After an illness of several months' duration, died at his home in Petersburg, Va., April 30. He was thirty-four years of age and graduated from the Medical College of Virginia in 1915. Dr. McCuiston moved to Petresburg about four years ago and was a member of the Medi-

cal Society of Virginia. He is survived by his wife and a large family connection.

Dr. Samuel H. Moseley,

Of Ebony, Va., died at his home at that place April 26, after a long illness. He was born in Brunswick County, Va., fifty-one years ago and, upon completing his academic education, studied medicine at the University College of Medicine, Richmond, from which he graduated in 1899. He joined the Medical Society of Virginia that same year and continued a member to the time of his death. He is survived by his widow and several children.

Dr. Elias M. Wilkinson,

Of Shaft, Va., died at his home in that place, April 10, death being due to acute indigestion. He was born in Nebraska, May 19, 1861, and studied medicine at the University of Maryland, from which he graduated in 1888, later taking post-graduate work in several colleges. He was a member of the Medical Society of Virginia. Dr. Wilkinson is survived by his wife and eight children.

Resolutions on Death of Dr. Wilkinson.

On Saturday, April 11th, the following members of The Russell County Medical Society, Drs. Gilmer, Trigg, Burns, Whited, Couch and Greear, called at the home of Dr. E. M. Wilkinson, Shaft, Va., he having died of acute indigestion on April 10th. Drs. Burns, Trigg and Gilmer were appointed to select and purchase an appropriate floral tribute to the departed friend and member of The Russell County Medical Society. Drs. Whited and Greear were appointed to draw up the resolutions of respect, after which the physicians named departed for their respective homes with heavy hearts and a consciousness of the fact that they also should be ready and unafraid when the Grim Reaper shall call for further sheaves from the ranks of the medical profession in Russell County.

Dr. E. M. Wilkinson was born in the state of Nebraska, May 19, 1861. He graduated from the University of Maryland in the year 1888. He was a Shriner and thirty-second degree Mason and a member of the Methodist Church. He married Miss Mary Ellen Porter, Barren Springs, Va., in the year of 1887. To this marriage there were born nine children, all living but one. Three of the children are married: Mrs. C. P. Dalton, Franklin, Va.; B. B. Wilkinson, Fielddale, Va., and Harry R. Wilkinson, Clinch County, Va. The other children were at home at the time of their father's death.

Dr. Wilkinson practiced at the following points in Virginia: Barren Springs, Sylvatus, Hillsville, Patterson, Laurel Fork, Fries, and for the past seven years he has been practicing for the Clinchfield Coal Corporation, where he has been doing an efficient and highly satisfactory practice. Dr. Wilkinson was a man who kept abreast with his profession and had taken post-graduate courses at the New York Polyclinic, in 1901; in electro-therapeutics, in 1903; at Northern Illinois School of Otology and Ophthalmology in 1912, and in gynecology and surgery at New York Polyclinic, 1902.

WHEREAS, God in His infinite wisdom has seen cause to remove our fellow physician and friend from the walks of men;

RESOLVED, That the Russell County Medical Society express hereby its appreciation of the professional, private and public life of Dr. E. M. Wilkinson, and, furthermore, it also expresses its profound sympathy for his bereaved family;

FURTHER BE IT RESOLVED, That this tribute of respect be spread on the minutes of The Russell County Medical Society, that the editors of the periodicals mentioned mail copies containing this notice to the family of Dr. Wilkinson, and that same shall be published in the Lebanon News, Lebanon, Va.; Honaker Herald, Honaker, Va., and the VIRGINIA MEDICAL MONTHLY, official publication of the Medical Society of Virginia, of which our fellow physician was a member.

(Signed)

E. P. WHITED, M. D.,
Honaker, Va.
C. B. GREEAR, M. D.,
Honaker, Va.

Dr. Albert Cullen Fox,

For forty years a practicing physician of Waynesboro, Va., died at his home in Lincolnton, N. C., April 5, and was buried at Waynesboro. He had moved to Lincolnton about eighteen months ago on account of his wife's health. Dr. Fox was born in Jacksonville, Ala., about seventy-seven years ago and studied medicine at the University of the City of New York, graduating in 1873. He had been a member of the Medical Society of Virginia since 1883. Dr. and Mrs. Fox celebrated their fiftieth wedding anniversary last October. He is survived by his wife and several children.

Dr. Charles Edgar Busey,

Of Lynchburg, Va., died at his home in that place, April 5, after a brief illness. He was a native of Baltimore and seventy-two years of age. He graduated from the College of Physicians and Surgeons, Baltimore, in 1878, and later took a post-graduate course. He moved to Lynchburg in 1884, and was at one time a member of the Medical Society of Virginia. He is survived by his wife and three daughters.

Dr. Melville Cox Strickland,

Formerly of Salem, Va., died at his home in Oregon City, Ore., April 19, from cerebral hemorrhage. He was fifty-five years of age and graduated from Jefferson Medical College, Philadelphia, in 1889. He left Salem, Va., about twenty-seven years ago, and has since made his home in Oregon. He had been in bad health about a year. Two sisters and two brothers—Dr. J. T. Strickland, of Roanoke, Va., and Dr. E. F. Strickland, of Winston-Salem, N. C.—survive him.

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Mal-
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Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in $\frac{1}{2}$ cup cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the regular formula.

For children and adults follow the same method in the proportion of $\frac{1}{2}$ teaspoonful of gelatine to a glass of milk.

To safeguard against impurities and disturbing acidity it is essential to specify a plain, unflavored, unsweetened gelatine, such as Knox Sparkling Gelatine—the Highest Quality for Health.

A package of Knox Sparkling Gelatine, together with the physician's reference book of nutritional diets with recipes, will be sent free, to any physician if he will write to the Knox Gelatine Laboratories, 441 Knox Avenue, Johnstown, N. Y.

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 52, No. 3.
WHOLE No. 876.

RICHMOND, VA., JUNE, 1925

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CALCREOSE

R. RAMSDEN WADE reports (Brit. M. J., 1: 158, Jan. 24, 1925) having had good results from the administration of creosote in the treatment of cases of influenzal pneumonia and chronic influenza, which are very liable to be mistaken for phthisis.

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Original Communications

THE INTRAVENOUS USE OF GENTIAN VIOLET IN THE TREATMENT OF SEPSIS.—A REPORT OF THIRTY-TWO INJECTIONS.*

By J. S. HORSLEY, Jr., M. D., Richmond, Va.

Gentian violet is one of the so-called new antiseptic dyes. In 1912, Churchman, formerly of Johns Hopkins, made the first elaborate study of its bactericidal properties. He showed that, although gentian violet in sufficient concentration was probably toxic to all bacteria, Gram positive organisms were markedly more sensitive to it than Gram negative. Young and Hill, of Johns Hopkins, first reported cures of staphylococcic septicemia by intravenous injections of this dye. A short while after hearing Dr. Young present his paper on "Treatment of Septicemia and Local Infections by Mercurochrome-220 Soluble, and by Gentian Violet," at a meeting of the Southern Surgical Association, December 11, 1923, I carried out some experiments on dogs to determine the local and general toxic effects of gentian violet and mercurochrome given intravenously in normal dogs. Only the results with gentian violet will be considered here.

It was found that injections of very small amounts of 1 per cent solution of gentian violet into the subcutaneous tissues, as might occur in infiltration from a faulty vein puncture, produced only a transient mild inflammation with no subsequent sloughing or induration. The intravenous use of a 1 per cent solution of gentian violet, with the recommended clinical dosage of from 0.3 to 0.7 mgm. per kilogram of body weight, was found to produce no apparent reaction except a transient false cyanosis due to the dye itself in the circulation. Practically all of the dye is excreted within twenty-four hours by the kidneys and gastro-intestinal tract. At necropsy several days later the thoracic and abdominal viscera

were found grossly normal and microscopic sections of the liver and kidneys were also normal.

At the present time I am carrying out experiments with the intraperitoneal use of gentian violet and hope to report on this in a few months.

Several weeks after these experiments, occasion arose clinically to use gentian violet intravenously. Up to April 20, 1925, thirty-two intravenous injections of gentian violet have been given in the treatment of severe sepsis. Five of these injections were given by Dr. O. O. Ashworth, and one by Dr. A. I. Dodson. The remaining twenty-six were given by the author.

ANALYSIS OF CASES

The thirty-two injections were given to twenty-five patients, some patients receiving more than one injection. Of these twenty-five cases, eight, or 32 per cent were cured; seven, or 28 per cent, were markedly improved; five, or 20 per cent, were only slightly improved; and five, or 20 per cent, were unimproved. I consider that five of these patients owe their lives to the intravenous use of gentian violet. There were no deaths from the injections, and only two reactions. These will be discussed in detail later. The youngest patient was five years and the oldest sixty-six years.

PREPARATION AND DOSAGE

Pure gentian violet may be obtained in powdered form. Coleman and Bell's gentian violet, and a German preparation put out by G. Grubler and Company, Leipzig, Germany, have been used with equally good results. Gentian violet can be used in 1 per cent to 0.25 per cent solution. I prefer a 0.5 per cent solution. The solution should preferably be made up fresh for each injection, in either sterile distilled water or sterile physiological salt solution which has been dissolved in distilled water. I used the salt solution for it happened to be more available. All needles, syringes and containers should be thoroughly rinsed with sterile distilled water or intravenous saline solution before being used. The accurately weighed gen-

*From the Surgical Department of St. Elizabeth's Hospital, Richmond, Virginia.

Read before the Staff Meeting of St. Elizabeth's Hospital, April 23, 1925.

tian violet powder is then added to the proper amount of warm solution and gently mixed. This is allowed to stand for at least a half hour. The solution does not have to be sterilized again, as it sterilizes itself. Just before use the dissolved solution is filtered through sterile gauze (six or more layers). The solution must not be allowed to stand in the syringes, as this will frequently cause them to catch or hang.

Care must be used in the preparation of the solution, in order to insure good results and no reactions. The intravenous use of any drug is not to be regarded as a slight matter. Especially is this true when such large quantities of an antiseptic solution as this are being used.

The average dose is 5 mgm. of gentian violet per kilogram of body weight. The smallest dose given in this series was 3 mgm., and the largest 7 mgm. Cases are reported where as large a dose as 10 mgm. has successfully been used. Care must be taken in infants and very old people when it is probably best to give a small dose (2 to 3 mgm.) first and on the following day repeat with a larger dose (4 to 5 mgm.) if there has been no reaction. It is often advisable to follow up the initial dose with subsequent ones at daily or two-day intervals, depending upon the amount of improvement and the general and local conditions.

One of the superficial veins of the forearm or elbow are preferable for the site of injection, though any available vein can be used. The same technic is used as in giving neo-salvarsan or any other intravenous medication. The solution should be injected slowly, at least four minutes being taken to make the complete injection. If the solution is administered too rapidly, the patient will complain of a flushing sensation of heat, slight nausea, faintness or a sensation of constriction of the throat or chest.

TYPES OF SEPSIS TREATED

Of the thirty-two cases treated, only two did not have smears and cultures taken previous to treatment which showed a Gram positive staphylococcic organism. Of these two cases, one was clinically a Gram positive staphylococcic infection for the patient had multiple recurring boils. The second case was one of early left femoral phlebitis. Shallenberger, of Atlanta, reported at a meeting of the Southern Surgical Association, December, 1924, several

cases of phlebitis treated successfully by the intravenous injection of gentian violet. He also stated that the most predominant etiological organism in phlebitis is a Gram positive staphylococcus, but this organism is very difficult to culture from the blood stream. In phlebitis cases a therapeutic test or trial is justifiable, however, before attempting to culture the causative organisms. The following were the diagnoses of the twenty-five cases treated:

- Infected wounds, 6;
- Chronic suppurating sinus, 2;
- General peritonitis, 3;
- Multiple recurring furuncles, 1;
- Multiple recurring carbuncles, 1;
- Acute left femoral phlebitis, 1;
- Liver abscess, 2;
- Acute suppurative infection of the extremity, 2;
- Chronic suppurative osteomyelitis, 1;
- Chronic suppurative arthritis and osteomyelitis, 2;
- Acute suppurative mastoiditis, 1;
- Pyonephrosis, 1;
- Empyema, 1;
- Necrotic abscessed testicle, 1.

REACTIONS

Immediately after or during the injection of gentian violet, there develops a marked pseudocyanosis. The degree depends upon the dose given. With the larger doses this feature is quite marked and very alarming to the patient and his relatives if the cause is not explained. This coloration of the skin and mucous membranes is due to the presence of the dye in the circulation. It subsides in a few hours and is entirely gone by the end of twenty-four hours. A careful watch was kept on these twenty-five patients as to their pulse rate, temperature, urinalysis and blood examination before and after the injections, and in only two out of the thirty-two injections did any sign of reaction develop.

The first was in a patient forty-seven years old who had a pyonephrosis. He had been having frequent chills, running a septic fever for several days, the temperature going as high as 103.5° F. He was critically ill and seemed to be getting worse. Cultures from the drain in the left kidney pelvis and from the urine showed many Gram positive staphylococci and a few Gram positive and negative bacilli. A

1 per cent solution of gentian violet was given slowly into a superficial vein of the elbow, a dose equivalent to 5 mgm. per kilogram of body weight. Toward the end of the injection the patient complained of a sensation of faintness. About fifteen minutes later he had quite a severe chill, the temperature rising to 105.2° F., afterwards returning to normal in twelve hours, and the patient seemed improved. The temperature rose again to 103° F. for two successive evenings and then remained about normal. It is not certain whether the chill following the intravenous injection was caused by the injection, or whether it was merely coincidental. The patient had been having daily chills, though not so severe, and a few minutes previous to injection the drainage tube had been manipulated in an attempt to discover a new pus pocket. Whether the chill was coincidental or not, this case is recorded as a reaction following the intravenous use of gentian violet. The patient was later discharged from the hospital decidedly improved.

The second reaction followed the intravenous use of gentian violet in a man thirty-eight years old who had multiple recurring boils that could not be controlled by the ordinary procedures. He received two doses at four-day intervals. Each was equivalent to 5 mgm. per kilogram of body weight, and each was given into the same vein. Following the first injection the patient had no trouble, and showed improvement in the boils. In order to insure a cure a second injection was given. The first and second doses were prepared and given alike, with the exception of slightly more rapid injection of the second dose, and the gentian violet powder for the second dose was only allowed about fifteen minutes to dissolve in the sterile salt solution, whereas the first was allowed the usual half hour or more. During the injection the patient complained of feeling hot, had slight nausea and a sensation of constriction about the throat. The rate of injection was slowed until these sensations passed off. No infiltration or leakage while the solution was being injected was noted, and the patient did not complain of any stinging or pain about the point of injection. He returned home a half hour after the injection feeling perfectly normal. About ten hours after leaving the hospital the patient had a very slight chill and developed in his lower left chest a

sharp pain which was increased by breathing. He returned to the hospital the following day, and examination by Dr. O. O. Ashworth showed a definite early pleurisy at the left lower chest. The patient also complained of slight soreness about the site of injection. After a few more days the soreness in the arm increased and was quite definitely confined to the vein which had been used for injection for a length of 15 cm. from the site of injection. There was no sloughing, and after several days the acute soreness was largely relieved. Two weeks following injection the patient left the hospital well with the exception of slight soreness and induration about the site of the injection. Dr. Ashworth, who treated the pleurisy, was of the opinion that the chest condition and the intravenous injection were coincidental, but whether this be true or not is hard to determine accurately, as it is possible for the pleurisy to have been caused by an infarct. Why the periphlebitis developed is difficult for me to understand, for during the injection there was absolutely no evidence of any leakage or infiltration, and the patient noticed no subjective symptoms at the site of the injection.

Experimentally and clinically I have caused very definite infiltration about a vein with a 1 per cent solution of gentian violet, and it has never caused any trouble except very slight tenderness for thirty-six to forty-eight hours. The most plausible explanation for the development of the periphlebitis is this case is that the gentian violet powder was not sufficiently dissolved and a small amount leaked out around the needle puncture. This caused a chemical inflammation about the vein which extended along the vein's lymphatics. The gentian violet solution was filtered through six layers of surgical gauze before it was administered. The lesson I learned from this case was always to allow at least a half hour for the powder to thoroughly dissolve, and to use a .5 per cent solution instead of a 1 per cent solution intravenously to insure complete solution.

FAILURES

As mentioned above, there were five out of the twenty-five cases where there was no improvement following the use of intravenous gentian violet. A careful study of these cases shows two chief reasons for no improvement. The most common is that of a mixed infection

or one where Gram positive staphylococci are either not present or not predominant. The second cause of failure is seen in those cases where the dye in the blood stream cannot reach the infected focus, as, for instance, large areas of necrosis or areas where the blood supply is scant, as in sloughs, large pus pockets, chronic necrotic bone and joint conditions. Dyes will only affect those bacteria which are accessible to the blood or lymph streams. This fact is well shown in Case 2 of the illustrative cases.

ILLUSTRATIVE CASES

Case 1.—Staphylococcic general peritonitis.—Two days following incision and drainage of a large abdominal abscess, Mrs. J. H. S., thirty-two years old, developed signs of general peritonitis. The abdomen became distended and rigid, pulse rose to 140 per minute, temperature to 102° F., and she was vomiting foul, dark material. She rapidly grew worse in spite of the usual peritonitis treatment, and her condition became so critical that the patient's relatives were notified. A pure culture of Gram positive staphylococci had been grown from the abscess drainage, and as a last resort gentian violet was injected intravenously, a dose equivalent to 6½ mgm. per kilogram of body weight. No infiltration was present, and no reaction followed. Within twenty-four hours

the pulse rate had dropped to 108, the temperature was normal, and the patient was very decidedly better (Figs. 1 and 2). The patient

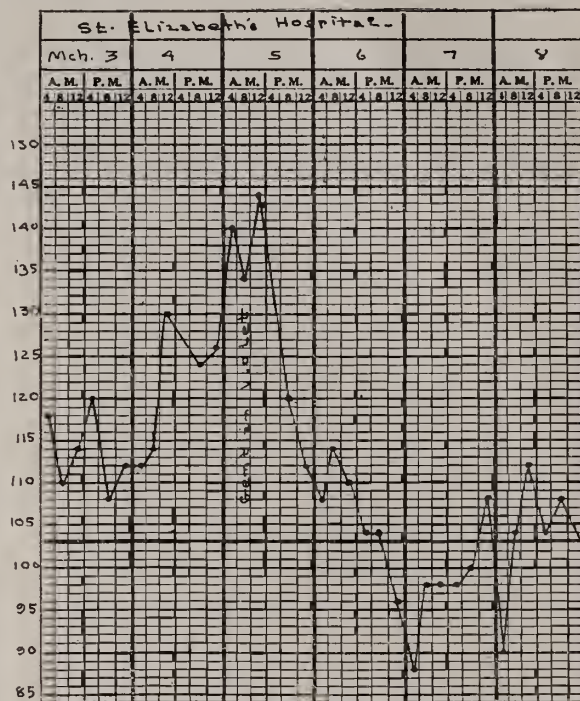


Fig. 2—Chart of pulse rate of first illustrative case who had a general staphylococcic peritonitis.

was discharged well twenty-one days after the injection.

Case 2.—Suppurating abdominal wound, acute cystitis, osteomyelitis and arthritis of right shoulder, and abscess of left testicle.—Mr. R. W. A., aged forty years, developed a severe suppurating infection of an abdominal wound, with septic fever. On account of growing a pure culture of Gram positive staphylococci from the wound, and the lack of improvement following the usual wound infection treatment, 30 c.c. of a 1 per cent solution of gentian violet were given intravenously. This dose is equivalent to 5 mgm. per kilogram of body weight. There was no infiltration or reaction. The temperature at the time of injection (noon) was 102.4° F. Three hours later it was 103° F., and sixteen hours later 98° F. The temperature then remained normal (Fig. 3). Both general and local conditions were greatly improved. Cultures taken daily after the injection were negative. Within five days a foul, soggy, suppurating wound was clean and healing rapidly by healthy granulations.

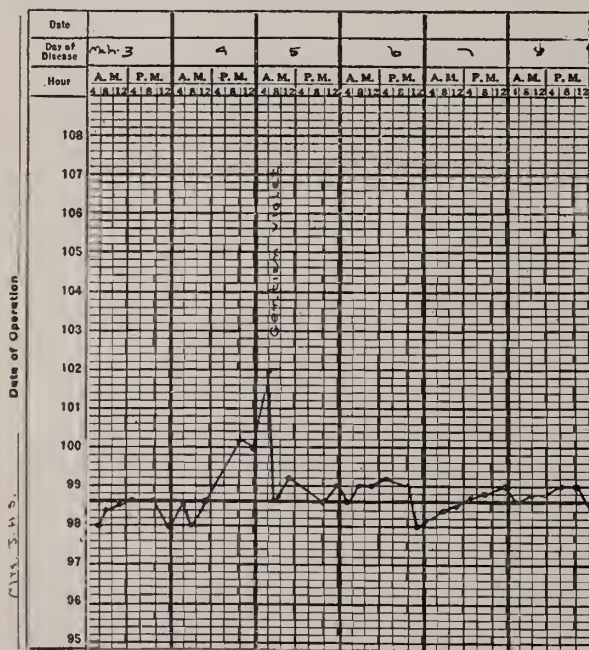


Fig. 1—Temperature chart of first illustrative case who had a general staphylococcic peritonitis.

Two weeks after this the patient developed acute cystitis, acute arthritis of the right shoulder and an abscess of the left testicle. The abscessed testicle was drained and part of the necrotic material removed. Cultures from this material and from the urine showed a mixed infection containing Gram positive staphylococci and Gram positive and negative

staphylococci and a few bacilli were cultured from the drainage, and 30 c.c. of 1 per cent gentian violet solution (5 mgm. per kilogram of body weight) were given intravenously. There was slight infiltration about the needle puncture, and no reaction. This gave only slight improvement.

This case showed a very rapid and remarkable cure with the first condition, no improvement with the second, decided improvement with the third, and only slight improvement with the fourth. The failure of improvement after the second dose was due partially to a mixed infection and mostly to the fact that the dye could not reach the bacteria in the large necrotic abscess cavity. The probable explanation for incomplete cure following the last two injections is, first, that the patient did not stay long enough to have repeated doses, and second, because of foci not being accessible to the blood stream causing reinfection.

CONCLUSION

In doses varying from 3 to 7 mgm. per kilogram of body weight, properly prepared 0.25 to 1 per cent solutions of gentian violet may be given intravenously with safety. In sepsis where Gram positive staphylococci are the sole or predominant etiological organisms and where the bacteria are accessible to the blood stream, the intravenous use of gentian violet is justifiable, indicated, and most beneficial.

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Visiting Nurses, Siam.

Modern public health work is being carried on in Siam. A special school for visiting nurses was recently opened in connection with the child-welfare center of the Siamese Red Cross.

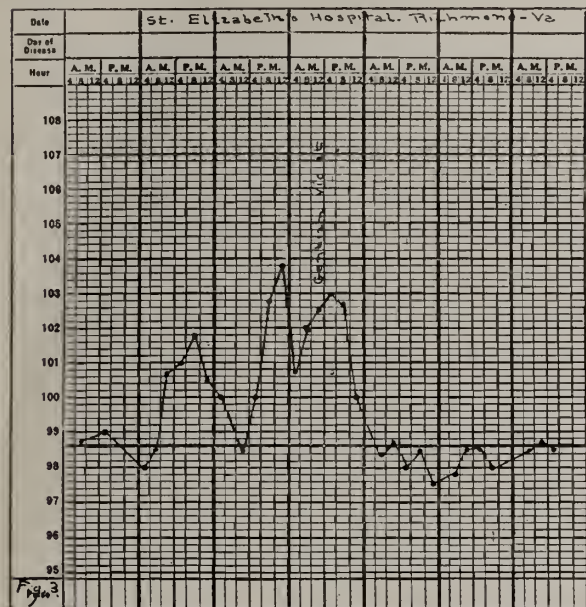


Fig. 3—Temperature chart of the second illustrative case who had an extensive suppurating abdominal wound.

bacilli and diplococci. A second dose of gentian violet was given intravenously. The preparation and dosage was the same as that used for the first injection, but there was no appreciable improvement.

Two and a half months after discharge from the hospital he returned with an abscess of the right axilla which apparently communicated with the shoulder joint. This was incised and drained. The patient improved very slowly, and he began to have a slight rise in temperature. Having previously grown Gram positive staphylococci and diplococci from the abscess drainage, 40.6 c.c. of a 1 per cent solution of gentian violet were given intravenously. This dose is equivalent to 7 mgm. per kilogram of body weight. There was no infiltration or reaction, and the patient left the hospital three days afterwards decidedly improved.

Eight months later the patient again returned with a chronic draining osteomyelitis of the head of the right scapula. Gram posi-

GLUCOSE AND INSULIN IN OBSTETRICS.*

By WESLEY WILLIAMS, M. D., Norfolk. Va.

Glucose and insulin can be used advantageously in a wide assortment of diseases and often with dramatic and spectacular benefit. I will mention briefly some of these: before or subsequent to surgery the patient may not be doing so well; he may be vomiting intractably, or may have an acidosis due to a concomitant starvation. How helpful it is to give him per os, by proctoclysis, using the Murphy drip apparatus or intravenously, glucose! What a joy it is to see him improve; in vomiting of children there may be an urgent need; in the toxemias of pregnancy; in eclampsia the need may be no less acute.

The object of this meeting tonight is to talk about obstetrics, so I will consider the use of glucose and insulin in toxemia of pregnancy and eclampsia. Many theories have been promulgated in explaining the etiology of toxemia of pregnancy and its kindred disorders, and in order that the wide variation of causes may be appreciated, I will, in passing, call attention to some of them: auto-intoxication, biological reaction due to the passing of placental cells into the maternal circulation, entrance of fetal metabolic products into the maternal circulation, endocrine disturbances, dietary alterations, aberrated liver function, *et cetera*. No one can say with impunity that any one particular cause is responsible; perhaps more than one factor is at fault, but there seems to be good ground for the assertion that a carbohydrate deficiency often furnishes the exciting cause. There may not be a relative deficiency at all but owing to the greatly enlarged and growing muscular uterus, fetus and placental hypertrophy, more glycogen is needed. It has been shown that the fetal tissues and placenta are very rich in glycogen. It is a matter of common knowledge that whenever there is a placental overgrowth as occurs in twin pregnancy, syphilis or hydatidiform mole, undue toxemic conditions may often and usually do follow. The incessant demand for carbohydrate necessitates an unaccustomed and abrupt drain upon the patient who is called upon at no time other than pregnancy to supply the glycogen at the rate needed to the organs and tissues of the body. Where must this gly-

cogen come from that is so urgently and badly needed? It is principally from the liver and muscles. What are the functions of the liver? One of its salient functions is the formation and storage of glycogen out of carbohydrate food. If, as in pregnancy, there is this already mentioned, unusual demand for glycogen, and if the patient does not eat a proper amount of carbohydrate food, what happens? In that event pathological changes occur in the liver that if permitted to continue will cause the patient to have definite and manifest symptoms. These pathological changes in the liver parenchyma, such as cloudy swelling, fatty infiltration and later degeneration, will inevitably culminate in liver necrosis if unchecked. It has been shown experimentally and abundantly at autopsy that if carbohydrate food is fed by mouth, or glucose given by proctoclysis or intravenously, improvement in the liver condition rapidly follows if the degenerative process had not ended in necrosis.

Let us consider the symptoms of toxemia of pregnancy and its modern treatment. It is best to separate the cases into two classes, the mild and the severe. In the mild cases we have nausea and vomiting principally; in the severe ones, the symptoms are more devastating and there are signs of albumin, acetone and diacetic acid in the urine. The acetone and diacetic acid, evidences of a general ketosis, are there because there had been consumed and metabolized an inadequate supply of carbohydrate and, as a result, the body forces in self-defense informally and belligerently attack the protein and fat.

In the mild cases, carbohydrate is fed in suitable quantity and at frequent intervals. As I have previously alluded to, on account of the growing fetus, hypertrophied uterus and placenta, more carbohydrate is needed for the body needs. Proteins and fats are reduced materially if these have been used excessively by the patient. Usually the patient will improve rapidly and soon be on the way to recovery; but if the case is more severe and the patient is vomiting incessantly, and albumin, casts, acetone and diacetic acid are present, the patient in starved for twenty-four hours, 800 c.c. of 5 per cent glucose and 2 per cent sodium bicarbonate is given by proctoclysis, the stomach is lavaged with the stomach tube and two ounces of magnesium sulphate left in the stomach at the completion of the lavage. In prolonged

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vomiting there is a reversed peristalsis and the magnesium sulphate changes the direction back into its normal downward course. Intravenously glucose is given, 300, 500, even 1,000 c.c. of a 10 per cent solution. There are disadvantages to giving normal salt solution, for sodium chloride is usually retained in the blood in these severe cases far above normal amounts. This is obvious if one pauses a few moments to reflect; if the systolic blood pressure is above 185 m.m. mercury, it is a capital idea to remove 300, 500, or even 1,000 c.c. of blood. The object of withdrawing blood is the removal of toxic products, rather than to merely lower blood pressure. After the preliminary twenty-four starvation, food should be given orally. It is better to give solid food than too much liquid bulk if the vomiting is still aggravating, as solids are retained when liquids are vomited. These solids should be carbohydrate: crackers, toast, cakes, peppermint candy, cold bread, while a small quantity of cream of tartar lemonade in the proportion of a drachm to a pint respectively is a very important adjunct. Cream of tartar has a favorable effect on the alimentary canal and kidneys. The proctoclysis of glucose and soda can be repeated every eight hours and the intravenous glucose injected every twenty-four hours. It is very likely that with the adequate supply of carbohydrate absorbed from the mouth, bowel and blood stream, the patient will show immediate and continuous improvement, but, if she does not, there is no other course left than to bring about a therapeutic abortion. There is no doubt that many cases aborted could be relieved by palliative and conservative measures.

During the last few years, the intravenous route for furnishing medicines to a patient has grown in popularity tremendously. In my mind the treatment of syphilis by the various salvarsans did much to popularize this route. In the course of human events, it is quite natural that men should concentrate their minds on the feasibility of administering an easily absorbable food directly into the blood stream. Glucose was naturally selected.

A number of physicians in giving glucose intravenously have reported reactions. It is not necessary to obtain a reaction, and to avoid such, every precaution should be taken: the glucose should be of the best quality. Merck's Highest Purity is that preferred by many; it

is dissolved in freshly distilled water, filtered, then sterilized. If these precautions are followed carefully, a reaction will be a rare occurrence.

Let us pass onward to the consideration of a more serious illness—eclampsia. Try to picture the patient vomiting, comatose, convulsing, blood pressure high, acidosis. What is to be done? Instantly two widely diverse methods of treatment enter into your thoughts,—the radical and the conservative. In the radical method, forcible dilatation of the cervix is resorted to and a rapid delivery consequently effected. This used to be the method "par excellence," but in more recent years the pendulum has swung to the conservative plan, with tabulation of better results. Various conservative plans are practiced in the world at large, but the Stroganoff, Dublin and Williams' features embody what are apparently best. I believe it discreet to appropriate the salient, stellar points of each and combine all three methods. The patient should be in a room to herself with the attendance of a special nurse, if possible, morphia gr. $\frac{1}{2}$ hypodermically should be given and repeated in the same or smaller dose according to the then existing need; if there is much frothing at the mouth, atropine sulphate gr. $\frac{1}{150}$ can be profitably included in the hypodermic. The patient is kept on her side in order that any mucus present in her mouth will run out, consequently lessening the danger to aspiration pneumonia; gastric lavage is done and two ounces magnesium sulphate left in the stomach just before removing the stomach tube. A soap-suds enema is given and by proctoclysis 5 per cent glucose and 2 per cent soda is allowed to run in slowly. 200 to 500 or even 1,000 c.c. of blood is removed. Whitridge Williams advocates the removal of large quantities of blood, and says that generally we remove too little. If the blood pressure tumbles to around 100 m.m. mercury and the pulse becomes concomitantly fast, he has not found that a real disadvantage. 250, 500 or even 1,000 c.c. of a 10 per cent glucose solution is given intravenously, and repeated every twenty-four hours for the time being. If the patient is doing badly and no improvement is obvious after a painstaking and thorough trial of the conservative method, it is expedient to bring on a therapeutic abortion and deliver in the easiest manner. As a rule, however, this course can be averted if statistics are correlated

and followed. As the patient improves, feed her carbohydrates, as outlined previously. As a result of this carbohydrate metabolism, important changes are occurring in the liver warehouse. The depleted supply is being replenished and the destructive process is halted, even stopped completely, unless necrosis has already ensued.

It was conjectured that the rate of absorption of the glucose from the blood stream would serve as a criterion of liver improvement. If the glucose was quickly absorbed and converted into glycogen, it would mean that the liver had not lost its function; and, conversely, if the sugar did not promptly disappear, it could only point out that the liver cells were so badly damaged and its function of storing glycogen so greatly restricted, even lost, that the patient was in a very serious condition and a lethal exodus might be expected to ensue.

Certain investigators studied this problem diligently in relation to normal pregnant women and toxic cases. So far as possible, all cases were placed under the same general conditions, and in each case the same quantity of glucose was given intravenously and a definite time limit allotted in each case for it to run in. Frequent blood sugar readings were made. Just before the injection of glucose, a blood sugar was taken, five minutes later another was done, in thirty minutes a third, one hour later a fourth, and in another hour a fifth blood sugar. Of course No. 1 blood sugar serves as a control, while No. 2 represents the peak of the blood sugar after the intravenous injection of the glucose; No. 3 shows the reduction in blood sugar thirty minutes after No. 2, Nos. 4 and 5 show whether or not the blood sugar has returned to normal during the allotted intervals. Bloods 2 and 3 are considered the most significant because they indicate the greatest amount of reduction in blood sugar accomplished by the liver and tissues in thirty minutes. The blood sugar was determined by the Folin-Wu and the modified Folin-Wu procedures.

In the normal and border-line toxic cases of pregnancy, it was found that the difference between blood sugars No. 2 and No. 3 generally fell within the limits of 68 and 106 mgms. of sugar. In the toxic cases, if this difference was as low as 50 mgms. sugar, it meant that the liver was functioning badly and not absorbing the sugar. If this difference was below 40

mgms. sugar, it meant that death was inevitable.

The object in making these blood sugar determinations was to study the liver changes and the need of the body for carbohydrate. No valuable time was lost, nor was anything left undone that might benefit the patients. After the experimental data had been obtained, the blood sugar readings on other patients were later dispensed with.

In these toxic cases much can be accomplished when glucose and soda are administered by proctoclysis; much more is accomplished when glucose is given intravenously should the occasion justify it. Inasmuch as glucose is so badly needed, it is expedient to venture one step further and give insulin hypodermically in order that the glucose may be more promptly utilized. It seems certain that in these toxic cases there is a marked impairment of carbohydrate metabolism. Insulin causes the rapid utilization, *i. e.*, the burning of glucose in the body. The metabolism of fats and their intermediary products, acetone, diacetic acid, Beta-oxybutyric acid, is to a large extent dependent on the metabolism of carbohydrate. It is graphically stated that fats burn in the flame of carbohydrates. Since insulin increases the combustion of carbohydrates, it also increases that of fats and the mentioned intermediary metabolic products, which are of extreme importance in causing acidosis or ketosis.

The remarkable and dramatic results achieved with insulin in clearing up diabetic acidosis, even coma, are also observed when insulin is given hypodermically along with glucose intravenously in non-diabetic acidosis, regardless of the cause, whether post-operative or in ketosis due to intractable vomiting of pregnancy.

Regarding the method of treatment as especially appertains to glucose and insulin, a brief consideration is necessary. Up to 1,000 c.c. of a 10 per cent glucose solution is convenient to use, as, with it, the patient receives a much needed supply of fluid along with the glucose. The solution should be run in slowly and kept warm. About fifteen minutes after the injection has been started, ten units of insulin is given hypodermically and repeated at intervals. One unit of insulin causes the utilization of from 2 to 3 grams of glucose. If 100 grams of glucose is given in 1,000 c.c. of water, 30 units of insulin could be safely given. For

safety's sake, an excess of glucose should be given to prevent a possible hypoglycemic reaction or insulin shock.

Medical knowledge and technique are ever changing. There has been so much written since its epoch making discovery that in reviewing the literature concerning insulin in the medical journals at my command, I was surprised to find that insulin was being increasingly used in other fields and pastures than diabetes by eminent authorities. When asked by our chairman to read a paper on obstetrics, I decided to weave together glucose and insulin in an appropriate manner.

Like Columbus who even died never realizing that he had discovered an unknown western continent—America—for he believed that what he discovered was India, so Banting and his associates in their early, historical and memorable work perhaps never conceived how great a discovery they had made and what revolutionary changes would be evolved in the treatment of other conditions than diabetes. I feel certain that future literature will be richer in newer facts along this line.

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THE TREATMENT OF DIABETES BY THE COUNTRY DOCTOR.*

By I. K. REDD, M. D., Atlee, Va

In selecting a subject for the first paper to be read before the Hanover County Medical Society, I have chosen one—The Treatment of Diabetes by the Country Practitioner—which I hope will prove of practical value to every member of the Society.

The discoveries in the field of medicine in the past twenty years have not been accidental, nor have they been handed down to us by old Indian medicine men, nor are they the dream children of druggists, as some of our newspaper advertisements would lead us to believe. They have been made in experimental laboratories designed for that purpose by hard working, scientific men and women, often after years of research. The discovery of insulin by Banting is a good example, salvarsan by Ehrlich is another. The fact that these new gland extracts, serums, drugs, etc., have been elaborated in research laboratories by technicians, rather than by practitioners, often means that there must be special apparatus, elaborate laboratory equipment and oftentimes specially

trained men to administer them, and this means hospitalization and expense for the patient, which sometimes he cannot meet. The country doctor, then, must find a way to simplify or modify the technique to meet the requirements of his limited time and equipment, in order that his patients can have the advantages they deserve.

The use of insulin in the treatment of diabetes is really a hospital procedure, the amount and frequency of dosage being governed by the blood sugar. The blood sugar test is complicated, necessitating a micro-colorimeter, which is a very expensive instrument. It can be used, however, not with as exact dosage or results, but with enough accuracy to relieve the patient and allow him to enjoy life without being in constant dread of an acute acetone poisoning.

I wish briefly to run over the chemistry of diabetes, to show why and when insulin is indicated, and how it can be used in our practice. The pancreas is functionally a gland of both internal and external secretion, and in its so-called "Islands of Langerhans" it possesses tissue elements embryologically and functionally distinct from that of its glandular acini which are concerned with the production of its external secretion. These islands, called the "insular apparatus," are believed at present to produce normally a hormone which is essential to the adequate control of glycogenesis and the formation and elimination of acetone bodies in the human organism. They are located in the tail of the pancreas and an extract made from that portion of the pancreas of animals is called insulin.

In the digestion of carbohydrates the sugars are absorbed as glucose, which is converted into glycogen by this hormone, which is our natural insulin, and absorbed by the tissues. In the absence of insulin the tissues are unable to absorb glucose as such. There is an excess in the blood, which is eliminated by the kidneys and we have diabetes. The tissues become starved with plenty of food at hand which they cannot assimilate. The body fats are then called on to make up the deficiency and in their metabolism we have as a by-product acetone which breaks up into diacetic acid and ketone bodies, and these are systemic poisons. This condition, acute acetonemia, is responsible for most of the deaths in diabetics. By giving manufactured insulin, to take the place of the

*Read before the Hanover County Medical Society.

natural product, we prevent this condition, or, when it exists, relieve it if it hasn't advanced too far.

Insulin, therefore, has not supplanted diet in the treatment of diabetes, but it is used in selected cases only. In mentioning diet with which we are all familiar, I wish to call attention to a little book published by W. B. Saunders & Co., called "A Primer for Diabetic Patients." It contains a description of diabetes, the technique for qualitative sugar test, insulin therapy, and very serviceable diet lists, menus and recipes for diabetics, put in a form that the layman can understand. Each of my patients is given this book and they take a great deal of interest in it. In a short time they become good diabetic dietitians. It also saves the doctor considerable explanation and detail.

For convenience as to method of treatment. I wish to divide diabetics into three classes, with a report of a case in each class. These cases are all white women between the ages of 55 and 65, married, with children, none of them having any other trouble complicating the diabetes, and all have lived in about the same social and economic environment their entire lives.

In the first class I have placed those cases which are either early, mild, or both. These patients have a fair tolerance for sugar but are easily overwhelmed, do not show acetone, and on proper diet clear up in from one to six months. They respond nicely to diet and do not need insulin. In this class I report Mrs. A. M., age 57. She complained of headache and polyuria, her urine showing sugar only. This patient was given a primer and, under treatment, was symptom free in three weeks, her urine was sugar free in two months and has remained so for the past eight months, specimens having been examined weekly. She is now on a liberal diet. These cases are, of course, easily dealt with and, with co-operation, become sugar free and remain so.

In the second class I have placed cases of longer standing, which finally clear up under dietetic treatment in from six months to several years. They may show an occasional trace of acetone which clears up on the administration of soda. They have a low sugar tolerance, but enough to save their body fats. These patients should be placed in a hospital, given insulin until sugar free and their tolerance esti-

mated, after which they are more easily kept sugar free; but with only an occasional trace of acetone, which responds to treatment, it is reasonably safe to treat them at home. In this class I report Mrs. L. S. R., age 60. She complained of weakness, polyuria and polydipsia, voiding about four gallons of urine in twenty-four hours. Her urine was loaded with sugar and a trace of acetone, which cleared up on the administration of soda. On diet, in the first three weeks her urinary output was reduced to two gallons in twenty-four hours. Her urine showed sugar with an occasional trace of acetone for two years, with gradual improvement as to amount and decreasing thirst. She became sugar free and has remained so for the past year. The amount voided in twenty-four hours is between three and five pints. She eats freely of five per cent and two tablespoonsful of ten per cent vegetables twice daily. This case would have improved far more rapidly had she been given insulin and rendered sugar free in the beginning, but at the time it was not in general use. She, however, was never in danger of acetone poisoning, and treatment at home was entirely within the limits of safety.

This brings us to class three, and here we find the dangerous cases. These patients have so low a tolerance that on a most careful diet they slowly become weaker, lose weight and finally die from acetone poisoning. Soda when taken in large quantities does not relieve this condition and the urine cannot be alkalinized. Insulin is the only hope for these patients and the sooner given the better. The method of administration I will outline under the case report. Mrs. E. G., age 63, was first seen in August, 1923. She complained of weakness and loss of weight, thirty to forty pounds, increased thirst and urinary output, which condition she stated began in June. Her urine was loaded with sugar, acetone and diacetic acid, twenty-four hour output was two gallons. Under diet and soda her symptoms improved and her daily output dropped to six or seven pints, acetone was present in almost every specimen examined, and I was unable to alkalinize her urine. I urged her after several months of treatment to go to a hospital and have her tolerance worked out, but she refused. Her condition remained unchanged, with no loss of weight for eight months until April 10th, when I was called to see her for se-

vere nausea and vomiting. Her face was flushed, breath fruity, and she vomited every few minutes. I insisted on taking her to a hospital but she refused, so I started soda by rectum, milk of magnesia by mouth, and an ice cap to her abdomen. I saw her four hours later and she was drowsy, taking short naps every little while. Her husband then consented to her removal, and she arrived at St. Luke's Hospital in complete coma ten hours after her nausea began. She was referred to Drs. J. G. Nelson and S. W. Budd, of the McGuire Clinic. On admission her blood sugar was 400 mg. per 100 c.c. (100 mg. normal). She was given 400 grains glucose and 120 grains bicarbonate of soda by rectum and forty units insulin by hypodermic, and this was repeated every six hours for the first twenty-four hours, when it was discontinued on account of rectal irritation. She began to improve after twelve hours and in twenty-four hours was conscious but not entirely rational. She was put on soft diet (sugar free) for three days and her tolerance worked out and found to be nil. On forty units of insulin a day a diet was worked out which allowed her to eat liberally of five per cent and moderately of ten per cent vegetables. Her blood sugar dropped to 150 mg. per 100 c.c. in six days, acetone absent in five days, when she was cut to ten units of insulin twice daily. An interesting complication in this case was noted when the acetone disappeared; her urine was loaded with granular, hyaline and waxy casts, but these disappeared in several days and have never recurred. This condition was due to renal irritation by acetone bodies. On returning home after two weeks in the hospital, her daughter was taught to do a qualitative test for sugar. She was equipped with a spirit lamp, two ounces each of Fehling's solutions A and B, and test tubes, and was directed to examine a specimen voided before breakfast each morning. If sugar was present, she was to give ten units ($\frac{1}{2}$ c.c.) of insulin before breakfast and supper of that day. If the urine was negative she was to get no insulin that day. For this she used a $1\frac{1}{2}$ c.c. glass syringe, needles, and alcohol. She mastered this technique very quickly, and since then the whole family delight in giving "hypos" and doing urinalyses. She uses the iletin put up by Lilly in 5 c.c. ampules, twenty units to the c.c. This preparation keeps well and does not

have to be kept on ice. The cost is \$1.20 per ampule. Since her return she has gained ten pounds, her urine contains sugar three or four days in a week and she gets insulin on those days, but there has never been a trace of acetone or diacetic acid. Her output is between two and three pints in twenty-four hours. She is cautioned against a hypoglycemia by watching for the following symptoms; if, after taking a dose of insulin, she feels faint or has dyspnea, she is to eat cane sugar until relieved. She has, however, never had to do this. Her skin has never been irritated by the "hypos." She does her own house work and requires less insulin when taking exercise than when quiet.

This woman would certainly have died without insulin, and although we are supposed to govern dosage by daily blood sugar tests, this is impossible in country practice, so with daily urinalyses we have been able to keep her as near sugar free as safety will permit. I check up on their sugar tests from time to time and find them correct. I believe that after a period of rest of her "insular apparatus," it will increase its function and she can discontinue insulin. Had this patient gone to the hospital earlier, as advised, she would have saved considerable expense, shortened her stay by more than a week, and missed a close call to pass into "that bourne whence no traveler returns." These people are not educated or trained in any special work; they are just plain farmers of ordinary intelligence, as we all have in our practice, and yet they are capable of taking care of this old lady and making life more comfortable for her at a cost of about \$1.00 per week.

INTRAPERITONEAL SALINE INJECTIONS IN INFANCY.*

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In view of the rather striking beneficial effects of the introduction of saline into the abdominal cavity in dehydrated infants, and in view of the recorded experiences of those who have used this method of treatment, it is surprising to see how few general practitioners and others who treat sick infants use this therapeutic measure. It may be that this procedure has not been sufficiently emphasized in

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the literature and for this reason does not have a widespread use. It may be, too, that the symptoms arising from the loss of water content are not as obvious as many other conditions and symptoms. It may also be that the symptoms, though recognized, do not appear to be as important as they really are. Again, too, it is in very recent years that dehydration, though secondary, has been shown to be a definite clinical entity requiring definite treatment. The importance of this condition has, however, been emphasized in the year just passed.¹

SYMPTOMS AND SIGNS OF DEHYDRATION

Infants are subjected in greater number, and to a greater degree, to severe dehydration because of the prevalence and severity of gastrointestinal upsets. Vomiting and diarrhea represent the two chief avenues by which water escapes from the system; at the same time they represent the closed avenues by which water is unable to enter the body for absorption and consequent utilization.

An infant who has been the subject of severe diarrhea and of vomiting presents a rather characteristic picture. He usually is an athreptic infant, underweight, malnourished looking, with loose skin and prominent bones. He lies on his back uttering an occasional feeble cry. Some are so weak that they go through the facial movements of a cry without uttering a sound. The skin is very pale; in severe cases gray colored. It hangs in loose folds and feels dry. On pinching the skin it is seen to stay pinched for a moment or two and then slowly straighten out. This dry feel to the skin is noted everywhere, and this lack of normal elasticity is pathognomonic of dehydration. The eyes appear sunken, and in the more advanced cases a film is seen on the conjunctivae. The fontanelles are sunken, sometimes very markedly so. The mouth is held open and is very dry; the lips are often red in appearance. The pulse is rapid and may be markedly irregular. The temperature may be subnormal, or a fever may be present. The respirations are rapid; in the more severe cases they are deep and labored and costal in type resembling the Kussmaul type of breathing. The output of urine is nil. Severe collapse with cold extremities, very low temperature, ashen gray skin, expressionless face, and staring eyes are end stages.

EXPLANATION OF SYMPTOMS

Marriott² has shown that the effects of loss of water from the body are explainable on the basis of the resultant desiccation of the blood, or anhydremia. In the anhydremic state there is an increase of the total solids of the blood and in the dried weight of a unit volume of the blood. The specific gravity of the blood is increased, and there is an increase in the red blood cell count and a corresponding increase of the hemoglobin percentage.

Marriott also states that serum protein not infrequently increases 50 per cent in concentration. In the later stages of anhydremia, a decrease, however, in the concentration of hemoglobin and protein occurs, even though the body weight and blood volume determinations may indicate a further loss of water. This has been said to be an indication of destruction of blood corpuscles and serum proteins.

The deep and labored respiration is an evidence of the acidosis that occurs when desiccation of the blood takes place. Further evidences of an acidosis being present are the facts that there are a diminished alkali reserve, carbon-dioxide content, and bicarbonate combining power of the blood. This acidosis is explainable, in part, on the fact that there is a functional disturbance of the kidney with very little or no output of urine. As a result, there is a lack of excretion of the acids normally excreted, the predominating acid being acid-phosphate. An excess of inorganic phosphate is demonstrable in the blood. There is also probably an over production of acids in the tissue, a result of suboxidation. The kidney disturbance also explains in part the increase of the total non-protein nitrogen of the blood as well as the urea.

The abnormal respiration then is explainable on the basis of this acidosis. The high non-protein nitrogen and the anuria are analogous to a uremic state and explain the twitchings and, in the later stages, the convulsions of these patients. The urine, when obtained, shows albumin and casts. Infants with severe anhydremia are sometimes sent into the hospital with a diagnosis of nephritis because the doctor has found an abnormal urine, or because the mother has noticed that the child does not wet the napkin. A definite nephritis, however, cannot be said to be present

1. Editorial, J. A. M. A., 21:663-664 (August 25), 1923.

2. Marriott, W. McKim, Phys. Reviews, 3:275-294 (April), 1923.

in these cases, because few of these kidneys show any pathological changes and because, with the establishment of normal water content, the urine is again obtainable in normal amounts and examination for albumin and casts is negative.

The peculiar gray color of these patients has been shown by Marriott to be due to a compensatory constriction of the peripheral arterioles and a greatly reduced volume flow of the blood. The color of these patients invariably gets better when the volume of the blood is restored.

The loss of weight in these infants is, of course, explainable on the basis of the depletion of the system of a considerable amount of water, and on the basis that, due to the vomiting and diarrhea, there has been little food intake. Malnutrition, with loose skin, prominent bones, sunken eyes and depressed fontanelle result.

The fever that these patients show may be due to a concomitant infectious process, such as in the ears, respiratory apparatus, or bowel. Newly born dehydrated infants, however, show fever which disappears as soon as the dehydration is alleviated. This is the so-called "dehydration fever," and has been mistaken for a number of things, such as birth injuries and infections. It has been explained on the basis that due to the loss of water, there is a diminished amount of water left for evaporation, the reduction being so great, that there is not enough left to remove the heat of metabolism and fever then occurs. "Water is the central factor in the regulation of bodily heat,"—it is the one liquid, above all liquids, that is fitted for temperature equalization and regulation due to its qualities as regards specific heat, heat of evaporation, and conductivity.³

At post mortem, infants that have died with the condition under discussion show very dry tissues and skin, and very dry serous cavities. As a general rule they make very clean autopsies. One gets the impression, even as the various blood vessels are cut, that there is a decreased amount of blood and body fluids.

REASONS FOR GIVING SALINE INTRAPERITONEALLY

Having decided that a condition of anhydremia is present, and that it needs to be relieved, the question then comes up as to how it would be best to bring the water content up

to normal in as quick and effective and safe a way as possible. On account of the vomiting, and because of the small amount of water that such sick and weak infants take by mouth anyway, this route can be used very little and with barely much effect. Some advocate giving water by mouth by gavage, but when vomiting is present and when there is great prostration, this method is found to be not satisfactory. The insertion of a tube through the nose or mouth to the stomach, and the giving of water by the drop method in this tube is also inefficient in many cases because of the vomiting, and because of the necessity of keeping the tube in the nose or mouth for a prolonged period.

The condition calls for a lot of water immediately. Rectal administration, on account of the diarrhea and slow limited absorption, is obviously very ineffectual. Fluids given subcutaneously are, in severe cases, almost imperceptibly absorbed; in others very slowly absorbed, and then only in small amounts. In milder cases from 50 c.c. to 100 c.c. of saline can be put under the skin of the scapulae with some benefit, but in most cases, on account of the poor circulation and the poor absorption, one finds the results not very striking, so that in severe cases requiring quick restoration of the blood volume this method is not effectual.

Intravenous injections are sometimes impossible, and often very difficult, and not without danger. It is, too, rarely possible to inject a sufficient amount of saline intravenously to give the desired effects without throwing too great a burden on the already impaired circulation. For these reasons, and because of its advantages and safety, saline is given intraperitoneally. First used by Blackfan and Maxcy⁴ at the suggestion of Dr. Howland who saw it used on the service of Professor Garrod at St. Bartholomew's Hospital in London, the method has found widespread application and enthusiastic support.

THE METHOD

The area of injection is the lower abdomen in or close to the midline. After cleansing the skin with iodine and then alcohol the needle, connected with the receptacle containing the saline, is inserted into the abdominal cavity at an oblique angle through the linea alba, or, better still, just to the right or left of this line.

3. Editorial, J. A. M. A., 82:1200 (April 12), 1924.

4. Blackfan and Maxcy, *Am. J. Dis. Child.*, 15:19-28, Jan., 1918.

As the skin and subcutaneous tissues are raised with the left hand, the needle is pushed into the wall with the right hand until the sense of resistance that the abdominal wall gives has been overcome. A needle such as is ordinarily used to take blood for the Wassermann test does very well. The sterile graduated glass container, into which the warm saline has been put, is now raised three or four feet above the abdomen and the saline is allowed to run in.

The infant apparently suffers some pain when the needle is put in, and a lesser amount when the needle is removed, but very often falls asleep while the saline is running into the abdominal cavity. Upon removal of the needle a sterile piece of gauze, held firmly in place by a wide piece of adhesive, is applied to the puncture wound. The needle is withdrawn when the abdomen becomes slightly distended (that is, when the abdomen is on a level with the costal margins); should too much saline be put in, as evidenced by respiratory embarrassment, some of the fluid, occasionally as much as 20 per cent, can be removed by lowering the cylinder or flask containing the fluid to a level below that of the abdomen. In this way, by syphoning, fluid drop by drop or in a slow stream runs back into the flask. The pressure that has been produced by the occasional injection of too much fluid can often thus be removed.

AMOUNT INJECTED

In very small infants the amount injected is 50 c.c.—100 c.c. In small infants 100 c.c.—150 c.c. is injected, while in larger infants 150 c.c.—300 c.c. is injected. 300 c.c. should be the maximum injected at one time for larger infants, while for smaller infants not more than 200 c.c. should be injected at one time. As a rule, one injects 20 c.c. or 25 c.c. for each pound of body weight. Injections may be repeated every ten to twelve hours without harm.

It is very difficult to injure the intestine with the needle. It is perhaps conceivable, that by extremely faulty technique, bowel puncture would be possible by pushing the needle so deep that it would catch a portion of the intestine against the spine and posterior abdominal wall. The abdomen in such infants is usually very much sunken, so that the spinal column can be very easily felt; such a mishap as just described would, however, seem most unlikely.

Backes⁵ reports four cases of peritonitis following injection. In the literature I can find no other reported cases of such mishaps and I have never seen, either clinically or at autopsy, a case of peritonitis following the injection of saline into the abdominal cavity. Those who have written on this subject only commend the harmlessness of injecting saline intraperitoneally and the good results that follow. McLean and Lang⁶ state that "injection of fluid into the peritoneal cavity in dehydrated infants is a simple method of procedure which in our hands has had no undesirable effects." Aikman⁷ states that the peritoneal route of the injection of fluids proved superior to all other methods because of the ease and rapidity of administration, the volume of fluid that can be given at one time, and the certainty that no fluid will be lost. Gittings and Donnelly,⁸ in a comparison of different methods of introducing water, state that the mouth and intraperitoneal routes are the only methods that permit of the safe and painless administration of water in sufficient amounts to be of real value. Davison,⁹ in writing of its application to dehydrated cases in bacillary dysentery says, "this procedure has undoubtedly saved many lives."

ABSORPTION OF FLUID

The absorption of fluid injected intraperitoneally is quite rapid. Blackfan and Maxcy noted that after the injection of 200 c.c. of fluid six hours before death in an infant weighing twenty pounds, only 20 c.c. of fluid was found post-mortem. This infant had also received 250 c.c. of fluid eighteen hours before death. Denzer and Anderson¹⁰ state that their own post-mortem findings show that, as a rule, all but a comparatively small amount of the injected fluid was absorbed at the end of twenty-four hours. Quite recently, I injected 75 c.c. of normal saline into the abdominal cavity of a moribund infant. This patient died eight and one-half hours later and at autopsy the abdominal cavity was found dry.

Dandy and Rountree¹¹ found that from 40

5. Backes, Munchen. Med. Wehnschr., 68:1082, (part 2) 1921.
6. McLean and Lang, Am. J. Dis. Child., 19:359-369, May, 1920.

7. Aikman, J., J. A. M. A., 74:244-245, Jan. 24, 1920.

8. Gittings and Donnelly, Am. J. Dis. Child., 23:124-131, Feb., 1922.

9. Davison, W. C., Medicine, 1:465, Nov., 1922.

10. Denzer and Anderson, Am. J. Dis. Child., 21:565-574, June, 1921.

11. Dandy and Rountree, Ann. Surg., 59:587-596 (April), 1914.

per cent to 60 per cent of phenolsulphonephthalein solution was absorbed in one hour after its injection into the abdomen.

Denzer and Anderson,¹⁰ after the insertion of capillary tubes into the abdominal cavity, made taps at stated intervals after the administration of fluid. Observations were made on solutions of different composition; physiologic saline, Ringer's solution, and hypotonic salt solution. From these studies they conclude that absorption is variable, taking place from twelve to forty-eight hours. These authors also studied the reaction of the peritoneum by observing the total and differential cell count of the fluids obtained. They find that there is evidence of a very mild inflammatory reaction of a sterile type which, however, does not, as they state, contraindicate the repetition of an injection. Our own autopsies show no gross inflammation whatever, the clean site of the needle tract being the only evidence of an injection having been made.

RESULTS

The results obtained are in most cases most gratifying and at times dramatic. A severely dehydrated child lying practically comatose with deep, labored breathing, poor color, cold extremities and dry mouth and skin will often, after one injection or perhaps a series of two, three or four injections respond beautifully. The tongue, lips and skin become moist, the anxious expression disappears, the eyes appear less sunken and brighter, the urine begins to be secreted again, the temperature becomes more normal and, in general, the infant looks brighter, stronger, and better, the response being not unlike the recovery from acute shock.

The following case picked from a number of such infants, illustrates the symptoms and signs of the subject under discussion, the severity of the condition when it is well marked, and the response that such infants frequently make to this type of treatment. It must be kept in mind, however, that the restoration of water lost is, of course, but the first concern, for proper food must necessarily be supplied as soon as possible. Before this can be done the anhydremia must, however, be righted so that bodily functions may go on properly.

Case 1.—Age two months, full term, spontaneous delivery. Weight at birth said by mother to be nine and one-half pounds (4.3

kilos). Mother's health good; has had no miscarriages. Fed on breast for four days, then given diluted cow's milk to which sugar was added. Never weighed more than nine and one-half pounds. Three weeks before admission infant started with a watery diarrhea with vomiting of formula, and fever. The vomiting, and especially the diarrhea, became gradually worse. No blood, but some mucus noted in the stools at times.

Examination showed the infant to be very small, weighing only five pounds and four ounces (2.3 kilos), emaciated, dry, and very sick looking. It looked extremely prostrated. The extremities and body in general were cold. The skin was gray, bloodless in appearance and dry. On pinching the skin, which hung loosely in folds, it remained pinched for an appreciable time. The fontanelle was sunken, the eyes open and deeply set. The cry was very feeble; a sound could barely be heard. The breathing was deep and labored. The pulse was rapid and markedly irregular. The abdomen was sunken; the spleen not palpable but the liver easily felt just below the costal margin. The mouth and throat were dry, but showed no ulceration or inflammation. The lungs showed nothing unusual. The temperature on admission was 97 degrees Fahrenheit.

On the evening of admission (at 6 P. M.) 100 c.c. of physiologic saline was injected into the abdomen as described above. At 8 P. M., 60 c.c. of water was put into the stomach by tube; soon after this gavage about half of this was vomited. At 10 P. M. gastric gavage was again attempted, but because the fluid put into the stomach was almost immediately vomited, and because the saline put into the abdominal cavity four hours previously seemed to have been almost entirely absorbed, as evidenced by the fact that the abdomen was again flat, 100 c.c. of saline was again injected intraperitoneally.

The next day the infant seemed brighter and stronger though it still appeared quite sick. It had had four green, fluid stools during the night. At 9 A. M. it was given one ounce of its formula (lactic acid milk and Karo syrup mixture) by gavage which it retained. At 11 A. M. it was again given saline intraperitoneally, this time 125 c.c. From this day on recovery was rapid. Vomiting stopped and the diarrhea gradually subsided. On the third day of admission the cry was fairly vigorous, the

color of the skin was good, and the skin was moist. All feedings were retained and the baby nursed quite energetically. The respiration became normal in type and the temperature became normal. On admission the weight was five pounds and four ounces (2.38 kilos). One week later it was five pounds and eight ounces (2.50 kilos); two weeks later it was six pounds and two ounces (2.78 kilos). One month after admission it weighed seven pounds (3.18 kilos), and on discharge, seven weeks after admission, the patient weighed seven pounds and thirteen ounces (3.56 kilos). It had gained two and one-half pounds (1.1 kilos).

USE IN BURNS

Underhill¹² and his collaborators have recently shown that a very severe and fatal anhydremia may occur in burned patients. This is especially true of those in whom a large area of skin has been destroyed. The blood becomes concentrated because fluid is poured out in large amounts on the surface of the injured areas; there is a resultant concentration of the blood with increased hemoglobin percentages and red blood cells and other evidences. These writers report very striking and very successful results when the blood volume is brought within normal limits in these severely burned patients. They are enthusiastic enough to say that, with forcing fluids, "the vast majority of badly burned patients ultimately recover." Whether this be too enthusiastic or not, only further reports can say; Underhill's laboratory findings and results, however, are very striking. At any rate, his work warrants considerable attention. So far we have had the opportunity to give water in a severely burned child by the intraperitoneal route but once.

Case 2.—A two and one-half year female child in good health accidentally fell backward into a pot of hot grease, while playing about on the floor, burning her buttocks, thighs and genitals. The burns were treated locally by the family physician. The next day the patient was suddenly seized with convulsions, and the hospital ambulance was called. In the ambulance, and upon entry, the child had a series of generalized convulsions tonic in character. There was no previous history of convulsions and the family history was negative. The

mother offered the remark that the convulsion might be uremic as the urine was very scanty since the accident. On entry to Dooley Hospital for Children the patient was unconscious, cold, pale. The pulse was weak and thready. Large burns through the superficial fatty layer were present on the buttocks, thighs, genitals. An attempt was made to give water by stomach tube, but this was brought up by the patient ten minutes later. The veins were all collapsed. It was then decided to give the patient fluids by the intraperitoneal route. At 6:20 P. M., 300 c.c. of normal saline was injected intraperitoneally. Since entry, at 4:30 P. M. convulsions were almost continuous and there was a convulsion just previous to the injection. At 7 P. M. the patient was still unconscious but appeared better, color returning, pulse countable (rate 120 per minute) and respiration 36 per minute. There had been no convulsions since the administration of saline. At 8 P. M., 400 c.c. of water was put into the stomach, which was immediately vomited. 200 c.c. of water was then put down again by tube; this was retained. The next morning the improvement in the patient was truly remarkable. She was conscious, talkative, and wanted breakfast. Improvement from then on was steady and uneventful. The only other treatment was electric bake to the burned areas.

One case or one series of cases do not, of course, prove a point. The presence of other factors, and the tendency of a human being to get well even without treatment, or sometimes despite treatment, makes one very careful about drawing conclusions that may be incorrect. We know, however, that treatment in some conditions does affect the disease and in some instances cures it. The prompt and remarkable result in this case would seem to recommend this route, when indicated, as a most satisfactory method of treating large burns according to the recommendations of Underhill.

CONCLUSIONS

1. Dehydration, with the resulting anhydremia, is a very important clinical entity with a rather characteristic clinical appearance which should be immediately treated with large doses of water.

2. Saline given intraperitoneally is the best method for combating this condition in infancy because it is very effectual, harmless, easily done, and frequently the only route by which

12. Underhill, F. P., Carrington, G. L., Kapsinow, R. and Pack, G. T., *Arch. Int. Med.*, 32:21-49, July, 1923.

water can be introduced and retained in large enough quantities to do any good. The absorption is quick and the alleviation of symptoms very striking.

3. The reasons for giving saline in this manner are on a sound basis.

4. From the work of Underhill and others, and the case here reported, restoring water to the system in severe burn cases seems most important and well worthy of trial. In infancy, for the reasons stated, the intraperitoneal route is recommended.

5. The more widespread use of injecting saline into the abdominal cavity in dehydrated babies, whatever be the cause, is urged.

SUBDELTOID BURSTITIS.*

By FRED M. HODGES, M. D., Richmond, Va.

The subdeltoid or subacromial bursa is one of the largest in the body, being from two to three inches in diameter. The under surface is attached to the tuberosity of the humerus and the spinatus tendons; the upper surface to the acromion, the coraco-acromial ligament, and the under surface of the deltoid. It does not communicate with the joint. In extreme abduction it passes up practically under the acromion.

Subdeltoid bursitis is probably the most frequent cause of disability in the shoulder area. Trauma is usually the direct or contributory cause of the condition. No one has yet proven an infectious origin of the lesion, though many have reported relief of symptoms following the removal of some focus of infection, as an abscessed tooth, etc. Frequently, however, when for one reason or another some focus of infection was not removed, the symptoms cleared up in just as short a time. A few have removed material at operation that was supposed to be inflammatory in type, but could isolate no organism. In all probability infection is occasionally the cause of bursitis; but in the majority of cases, trauma, with tearing of the tendons of the supra- or infra-spinatus muscles followed by necrosis of the tissues and a deposition of calcium carbonate and phosphate, occurs.

The lime salt deposit is often adherent to the under surface of the bursa. The two surfaces of the bursa may be adherent or in the early stage there may be a serous effusion followed

by a villous overgrowth. The deposit may be single or multiple, close to or some distance from the tuberosity, and may be a solid hard mass or semi-fluid. The changes are more metabolic than infectious.

Brickner and Codman have repeatedly found the calcification in the spinatus tendons just beneath the bursa. The bursal walls are extremely thin, and they believe that instances reported of removal of the material from the bursa itself are due to a technical error in cutting through the bursa and allowing the lime salt deposit to pass out through the bursa.

The condition may be chronic, subacute, acute, or very acute. In the chronic cases complete abduction or rotation causes pain. This type may last for months or years. In the subacute, the symptoms are exaggerated but there is no violent pain except when there is forced rotation or abduction. In the acute type, the pain is severe and more or less constant but does not reach the violent paroxysms noted in the very acute. In the very acute, the pain is extreme. The patient sits hugging the arm to the side, the slightest motion causing a paroxysm of violent almost unbearable pain. The pain may be most severe in the area of the bursa, but frequently it extends from the spine to the fingers. Rarely is there much if any swelling over the area of the bursa. The area feels hot to the touch, but there is no redness. This type usually lasts from four to eight days. The extreme pain is evidently due to a neuritis, as shown by the rapid atrophy which occurs in the muscles of the shoulder girdle, particularly of the scapula. Within a few days' time this atrophy may be very distinct.

During the last three years we have had twenty-six cases of bursitis. The majority of these showed a definite deposit of lime salts close to the tuberosity of the humerus. A few giving no symptoms have been accidentally discovered in chest and other routine examinations. In a few cases with marked symptoms there has, however, been no calcification present. In some of these the x-ray showed a definite white line along the cortex of the humerus just over and above the tuberosity. This must have been due to an irritation of the periosteum at this point. In three cases, calcification in the area of the spinatus tendons followed this x-ray evidence of irritation in this area. In every case where there has

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been a severe acute attack, the deposit of lime salts has disappeared entirely in from ten days to two months' time. In two patients who had had symptoms for more than a year, rapid absorption of the salts followed an acute exacerbation. In two cases the condition was bilateral, with large calcified areas in both shoulders. In no case has there been a second attack in the same shoulder. In our series there were about twice as many occurring in men as in women; and of the twenty-six cases, ten were physicians. We have been unable to explain such a marked frequency among the medical profession.

In the acute and especially the very acute cases, large doses of morphin, local applications of ice, and gentle massage, using the palm of the hand, give the most relief. Large doses of atophan seem to shorten the attack. Above all else, do not under any circumstances use heat. Nearly every case we have seen has been made much worse by the use of heat. A baking machine is certainly a contraption of the devil in this disease.

No acute case should be operated upon, since in a large majority of these the deposit will be entirely absorbed following the attack, and within a short time the shoulder is practically normal. In the chronic cases where there is a marked deposit of salt, the removal of this evidently gives the most prompt and lasting result. Many patients with bursitis have marked limitation of abduction and rotation of the arm following any one of the different varieties, unless they are made to abduct the arm at least once daily in the chronic cases, and just as soon as the severe symptoms subside in the acute cases. Where this is not done, a forcible breaking up of adhesions later is necessary.

CONCLUSIONS

1. Subdeltoid bursitis is the most common cause of shoulder disability.
2. In the chronic cases with calcification, operation gives the most prompt and lasting relief.
3. In the acute and very acute type, operation is not necessary, and in the large majority of cases absorption of the lime salts occurs. This is followed by no limitation of the shoulder movement.
4. In many instances the x-ray shows a white line along the cortex of the humerus just over and above the greater tuberosity, prior to any deposit of lime salts.

5. In the acute and very acute cases, large doses of morphin, local applications of ice, and gentle massage give most relief. Heat in any form almost invariably makes the condition worse.

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PNEUMOPERITONEUM IN THE TREATMENT OF TUBERCULOUS PERITONITIS.*

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In the past the treatment, as a last resort, of ascitic tuberculous peritonitis consisted of coeliotomy with removal of the exudate, exposure of the peritoneum to the air for a short time, and closure of the wound.

Results following this method were fairly

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successful in removing the symptoms in about 50 per cent of cases. But among the others less fortunate in the ultimate outcome, the shock incident to the operation and the effect of a general anesthetic, usually ether, caused a prolonged period of convalescence, and in some cases an increase of activity in the lungs with fatal termination.

Within recent years the value of intraperitoneal air or oxygen inflations for the treatment of tuberculous peritonitis has been demonstrated by Godwin, Bainbridge, Stein, Mattick, and Gilbert. These clinicians have found that all of the beneficial results are obtained by this much simpler and more logical method, without the attendant harmful effects produced by the more difficult technic of a major operation on a patient whose resistance is already much lowered by the generalized tuberculous disease.

Regarding the causative factor in the beneficial effects produced in tuberculous peritonitis by injection of air into the peritoneum, there are two theories which are worthy of consideration: first, the mechanical irritation due to the distention of the abdomen by a foreign substance (air), causing a reaction of the tissues to the infecting organism; and, second, the chemical action produced by the air or some of its elements on the tubercle bacilli.

The technic of the intraperitoneal air inflations is simplicity itself when practised by a careful clinician, as follows: The patient is given a dose of castor oil eight hours previously, followed by simple enemas until clear just before the inflation. No food is given within six hours prior to inflation. Patient empties bladder or is catheterized at time of inflation, and is placed on table in horizontal position. Abdomen is sterilized with iodine and the point for puncture is frozen with ethyl chloride spray. A sterile trocar and cannula are inserted one and one-half inch below and to the left of the umbilicus and trocar withdrawn. To hasten the flow of fluid from the abdomen the head of the table may be raised. After all the exudate has been removed, the cannula is connected with rubber tubing leading from a pneumothorax apparatus and filtered air is allowed to flow into the peritoneum until the abdomen is dome-shaped and liver dullness obliterated, the patient being in the horizontal position. The cannula is

withdrawn when the abdomen reaches dome-shaped distention and the patient experiences some discomfort. Sterile gauze dressing is applied to wound. Within an hour X-ray stereograms can be made in any position.

When the fluid again accumulates and the patient's condition justifies, usually in four or five days, more air is injected as described above until dome-shaped distention is produced. A different point of puncture should be chosen at each refill. These refills of air are repeated until the exudate disappears and does not return. Usually about four or five inflations are necessary to produce good results. Some discomfort in the abdomen may be produced, but after the first twenty-four hours the patient feels a marked improvement.

The amounts of air injected vary according to the amount of fluid removed. For example, in a patient who had 3,000 c.c. of peritoneal exudate removed, 1,500 c.c. of sterile air were injected by means of a pneumothorax apparatus immediately afterward. His temperature dropped from 101.5 to normal in two weeks after three aspirations and refills at intervals of four or five days with no return of the fluid after the second week. There was rapid gain in weight.

Another case had 2,500 c.c. of fluid withdrawn and 1,200 c.c. of filtered air injected with almost immediate relief of abdominal symptoms and lowering of temperature from 104 to 99 in forty-eight hours. Fluid did not return after the second aspiration and refill with air. Gastric symptoms rapidly disappeared. There was gain in weight also.

The length of time necessary to effect a cure of tuberculous peritonitis by this simple method of intraperitoneal air inflations is generally less than required by surgery, heliotherapy, or X-ray. However, after removal of the fluid and injection of air into the peritoneum as described above, the patient may continue treatment with exposures to ultraviolet or X-ray, if desired.

SUMMARY

1. The simplest, safest, and most logical method of treating tuberculous peritonitis with ascites consists in removing the fluid with a cannula followed by injection of filtered air into the peritoneal cavity by means of a pneumothorax apparatus.

2. This method can be repeated as often as

necessary until all fluid disappears, and without harmful effects upon the patient.

3. This method is worthy of universal practice among patients with ascitic tuberculous peritonitis, as it offers a better prospect of cure within as short a time as coeliotomy, heliotherapy, and X-ray without the dangers of a surgical operation and its sequelae.

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SOME OBSERVATIONS IN THE DISEASES OF THE THYROID GLAND.*

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and
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This paper is based on our observations in connection with the examination of 1,346 patients and the determination of the basal metabolic rate 1,691 times. The instruments used were the Sanborn Benedict and Jones Metabolometer.

In no other branch of medicine has there been greater interest shown during recent years than in diseases of the ductless glands. The recent discovery of insulin by Banting and Best is especially noteworthy. While much of endocrinology is still a veritable wilderness and some fire a broadside of various gland preparations into the patient with little or no damage or effect, we can point with a certain degree of pride as to our knowledge of diseases of the thyroid gland.

The studies in the physiology and chemistry of the thyroid gland have been the basis of all our advances in the recognition of its diseases and we have but to mention such matters as

clinical calorimetry, the isolation of thyroxin and the accepted relationship of iodine to the production of goiter as a trinity which has been largely responsible for this.

For the purpose of the clinician we can classify diseases of the thyroid gland as follows:

- I. Simple goiter—
 - a. Colloid goiter
 - b. Cystic colloid goiter
 - c. Adenomatous goiter
 - d. Fibrous goiter.
- II. Goiter with thyrotoxicosis—
 - a. Exophthalmic goiter (hyperplasia)
 - b. Toxic adenoma.
- III. Malignant tumors—
 - a. Mesothelioma
 - b. Carcinoma
 - c. Sarcoma.
- IV. Hypothyroidism—
 - a. Physiological hypothyroidism
 - b. Congenital hypothyroidism
 - c. Secondary hypothyroidism.
- V. Acute thyroiditis.

SIMPLE GOITER

In the consideration of simple colloid goiter, it is now recognized that its prevention is largely a matter of supplying the necessary amount of iodine to the organism, it having been found by Marine and Kimball¹ that three grains of iodide salt for ten days, repeated in six months, prevented simple goiter in girls in practically all cases. McClendon and Williams² have shown that simple goiter is indirectly proportional to the lack of iodine in the soil and water of the community. Many cities where simple goiter is endemic are taking various measures such as described to prevent this condition, with excellent results. Here in Washington where goiter in school children is not prevalent, the family physician should be especially alert to note enlargements of the thyroid gland and institute iodine therapy.

The majority of the patients referred to us with simple goiters were of the female sex, between the twelfth and twenty-fifth year. The basal metabolic rate was usually normal and occasionally below normal. The administration of iodine usually caused the reduction of the size of the gland. In diffuse vascular colloid goiter, Plummer³ states that the administration of thyroxin as well as iodine will reduce the size of the gland to a great degree within twenty-four hours. The indiscriminate use of

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From the Laboratories of the Garfield Memorial Hospital, Washington, D. C.

iodine, desiccated thyroid gland, or thyroxin, in all types of enlargement of the thyroid gland is to be condemned, for the type of goiter to which this form of therapy is applicable is the diffuse colloid goiter. The administration of desiccated thyroid gland to a patient with an adenoma may give rise to toxic symptoms. We have observed several patients in whom this condition was produced by the administration of thyroid gland and in one case subsequent removal of the organ was necessary. Before attempting the medicinal treatment of a supposed non-toxic goiter, the patient should be thoroughly examined for evidence of intoxication and in all cases an estimation of the basal metabolic rate gives one the best index of the presence or absence of this condition. Every effort should be made to remove foci of infection, for these are important factors in the production of goiters and the resultant exhaustion of the tissues of thyroxin. Clinicians should not be content with the diagnosis of "goiter," but should endeavor to assign the condition to its proper classification.

GOITER WITH THYROTOXICOSIS

Differentiation of Types. In the past the differentiation of the two major diseases of the thyroid gland causing toxic symptoms, viz., adenoma with hyperthyroidism and exophthalmic goiter, was not often made, but our knowledge of these conditions has increased to such an extent that an improper diagnosis should rarely be made. Statistics from the Mayo Clinic⁴ show that with proper facilities it is possible to correctly diagnose toxic adenoma in 89 per cent of all cases and exophthalmic goiter in from 97 to 99 per cent of all cases.

In order that a patient may receive the proper treatment an accurate diagnosis must be made. Certain drugs are indicated in one disease, but are harmful in the other, and one type of radical treatment is applicable to one condition and contraindicated in the other.

The symptoms of either disease after they are well developed are so well known as not to need mention, however, we should stress the fact that the average duration of an adenomatous goiter prior to producing symptoms of thyrotoxicosis is eighteen years; for the exophthalmic goiter three to five years; the age at which toxic symptoms appear being forty-six for the toxic adenoma, and between thirty-five and thirty-seven for the other. The latter is usually decidedly more toxic and degenerative

changes in the various organs are usually more marked. The surface of the thyroid gland in the toxic adenomatous type is usually rougher and more nodular than in exophthalmic goiter; however, the absence of enlargement of the gland should not cause one to dismiss either diagnosis, for either condition may occasionally exist with little or no enlargement of the organ, and it is not infrequent to find a substernal or intrathoracic goiter on roentgen ray examination,—a fact which strongly emphasizes the importance of X-ray examination of every patient in whom hyperthyroidism is suspected or demonstrated. These points just mentioned are of great service in arriving at an accurate diagnosis.

From information from physicians referring patients to us and from our personal observations on 122 cases of hyperthyroidism, we have been able to compile certain figures of interest. One hundred and nine (109) or 89.3 per cent of the patients observed were females, which is somewhat higher than the usual figures given. In Table I we have shown the numerical differences between the two types of toxic goiter at the time of the patient's first metabolism test. Our series does not have the benefit of the report on the microscopical examination of the gland, as many patients did not come to operation, so a certain error in diagnosis may be expected.

TABLE I.
ADENOMA WITH HYPERTHYROIDISM

Males	Females	Total	Age	B.M.R.	Pulse	Weight
9 15.2%	50 84.8%	59	36.6	*42%	96.4	lbs. 122.3

EXOPHTHALMIC GOITER

Males	Females	Total	Age	B.M.R.	Pulse	Weight
4 6.3%	59 93.7%	63	39.4	*64.9%	104.5	111.5

Treatment. The matter of treatment has been a mooted question, there being those who champion the use of the roentgen ray and radium, those who feel that surgery is superior to other procedures and some who feel that rest and medical treatment offer practically as much benefit as the other two. We have endeavored to approach this subject with an open mind and give our opinion as to the best method to be used in the various diseases.

For the proper consideration of the two con-

ditions it must be assumed that a toxic adenoma represents a hyper-functioning organ, while the hyperplastic type of goiter represents this plus a perversion of function, involving the entire gland.

All agree that medicinal treatment and rest are essential in the treatment of hyperthyroidism by any method, but in our observations we have failed to note a case in which this method afforded permanent relief. Temporarily the results obtained may seem good, but when observed over long periods the symptoms usually return. Spontaneous recovery in exophthalmic goiter occasionally occurs. The figures given in Tables II and III on thirteen cases treated in this manner will bear out the previously made statements.

In the treatment of adenoma with hyperthyroidism, we believe that partial thyroidectomy as soon as the patient is in a condition for it is superior to the use of the roentgen ray. Excellent results are obtained by the latter method;⁵ however, those obtained by operation are decidedly more certain, the results more permanent and the risk exceedingly low, inasmuch as degenerative changes are usually less marked in this disease than in exophthalmic goiter.

If the hypothesis be correct that toxic adenoma is the result of pure hyperthyroidism, then the removal of the greater part of the gland should and usually does give prompt abatement of all symptoms with little probability of return provided both lobes are removed in part. To remove only the nodular portion of the gland is to invite a second operation at a later date. Preliminary ligation of one of the thyroid arteries is rarely necessary.

TABLE II.
ADENOMA WITH HYPERTHYROIDISM

Treatment	Cured	Im- proved	Unim- proved	Died
Roentgen ray..... 23 cases.....	7 30.4%	10 43.5%	6 26.1%	0 0.0%
Operation..... 18 cases.....	13 72.2%	2 11.1%	2 11.1%	1 5.6%
Medical..... 9 cases.....	3 33.3%	1 11.1%	2 22.2%	3 33.3%

The figures given in Table II and the curves plotted in Chart I will illustrate these points. The surgical mortality by cases in this disease at the Mayo Clinic⁶ in 1922 was 3.48 per cent. The mortality rate for the entire country would be somewhat higher. In the inoperable cases

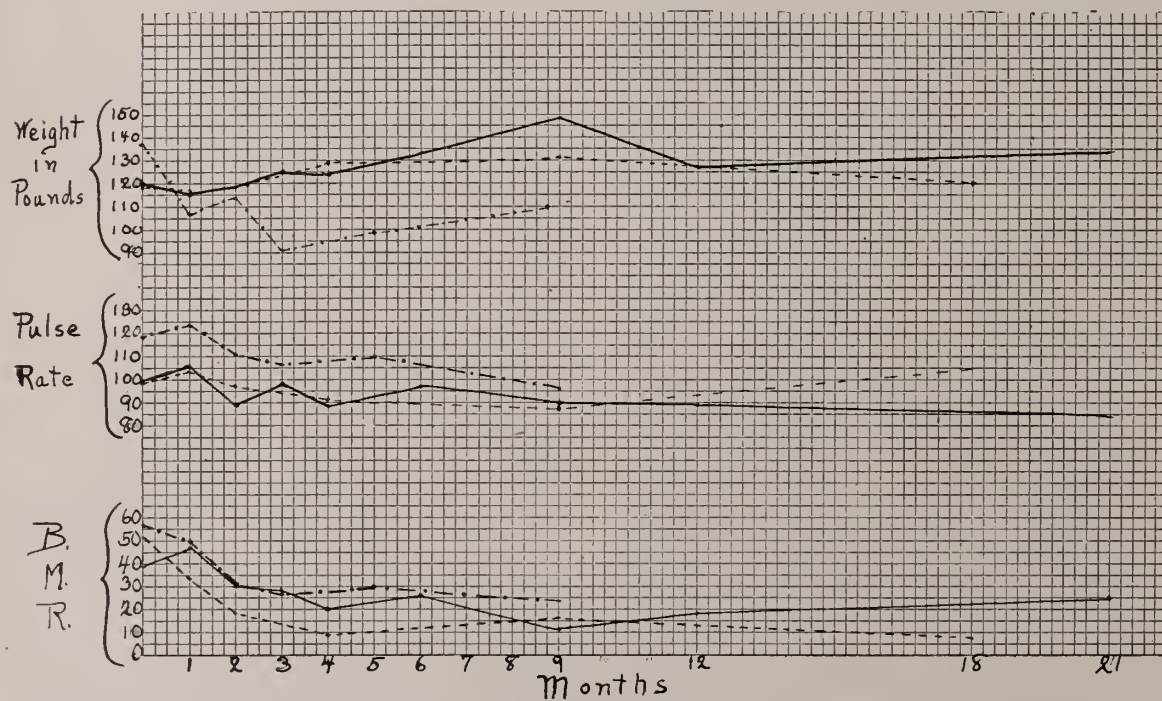


CHART I.
Adenoma of Thyroid Gland with Hyperthyroidism. Course of 8 cases treated medically indicated by dot-dash line.
Course of 23 cases treated with roentgen ray indicated by solid line.
Course of 11 cases treated surgically indicated by broken line.

the roentgen ray should be used along with other treatment. The use of iodine in these patients is to be avoided, as its administration serves to aggravate all symptoms.

If the exophthalmic goiter represents a hyper-functioning thyroid gland plus a perversion of its function involving the entire gland, it is doubtful if operation entirely solves the problem for the relief of symptoms. Cases treated by either roentgen ray or operation respond in a similar manner and those followed for a period of years are found to be in much the same condition at the end of that time.⁷ While the basal metabolic rate falls more rapidly after operation than after the use of the roentgen ray, the end result in our opinion is approximately the same. The low mortality rate for those using the roentgen ray as compared to a mortality⁸ of from 5 to 8 per cent for the entire country is decidedly in favor of the non-operative treatment.

TABLE III.
EXOPHTHALMIC GOITER

Treatment	Improved	Unimproved	Died
Roentgen ray..... 39 cases.....	32 82.0%	5 12.8%	2 5.1%
Operation..... 14 cases.....	10 71.4%	2 14.2%	2 14.2%
Medical..... 5 cases.....	2 60.0%	1 20.0%	1 20.0%

Of other causes
2
5.1%

We believe that the results given in Table III are quite representative of the work done in the average general hospital. It is in such hospitals that there is no standard technique for the treatment of this condition and each surgeon may employ the method which he considers best, or the roentgen ray may be utilized. The results obtained in certain specialized clinics of this country prove beyond

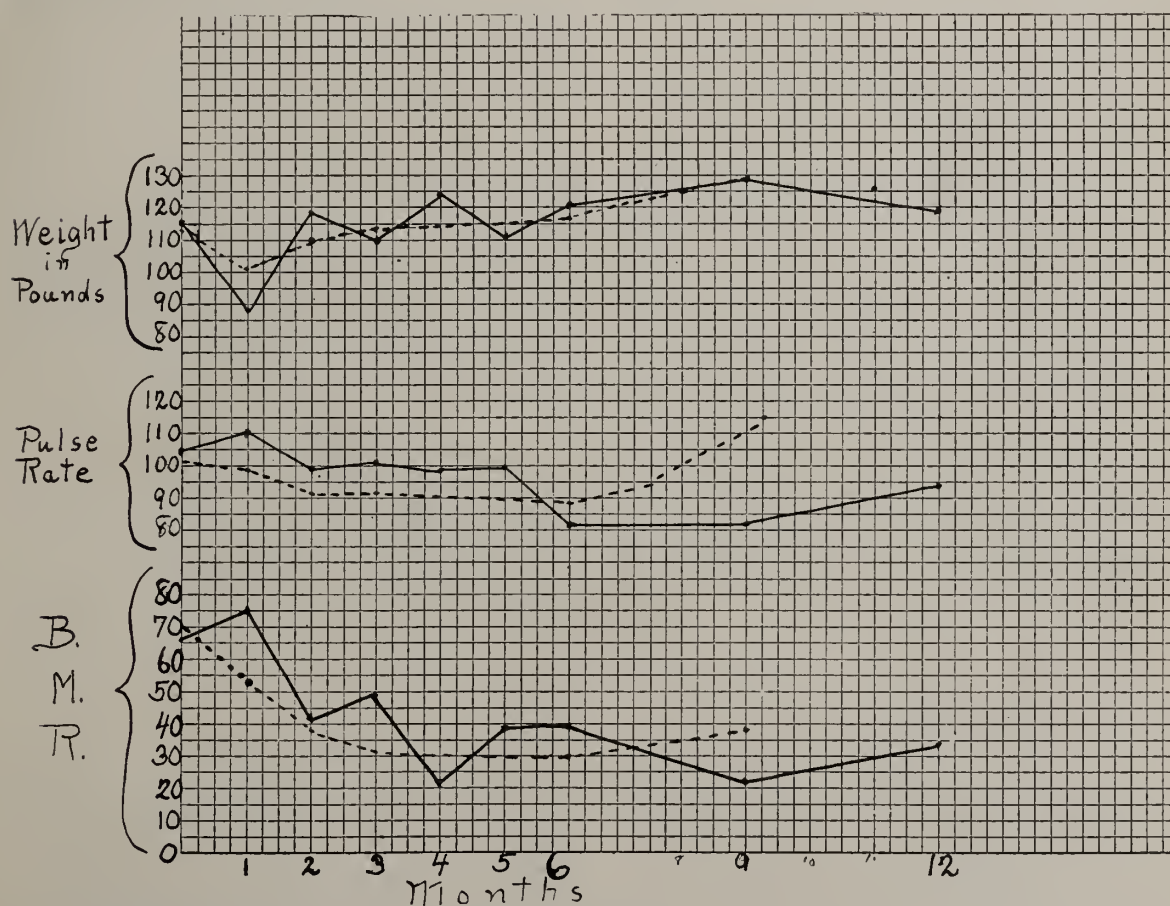


CHART II.

Exophthalmic Goiter.
Course of 10 cases treated surgically indicated by broken line.
Course of 39 cases treated by roentgen ray indicated by solid line.

a doubt that the relief of a sufferer from thyrotoxicosis depends upon his choice of a medical advisor.

The surgical treatment of exophthalmic goiter is the method of choice, provided the surgeon has had special training in the medical and operative treatment of diseases of the thyroid gland. If the patient cannot have access to the properly trained surgeon, we believe that the roentgen ray treatment in the hands of the average radiologist is to be advised, in view of the fact that the mortality rate by this method is practically nil, as against a death rate of over 10 per cent in our series. Under such conditions, we believe that we are not doing an injustice to the patient to advise the use of the roentgen ray at the beginning of treatment, with the understanding that operation should be submitted to, provided the first five treatments do not bring satisfactory results.

Chart II illustrates the course of the disease in patients treated by surgery and roentgen ray.

The use of iodine, preferably Lugol's solution (liquor iodi compositus) is to be recommended in all cases. The results obtained by Plummer and Boothby⁹ and those at the Massachusetts General Hospital¹⁰ are remarkable and have enabled them to further reduce the mortality rate. The Mayo Clinic pre-operative mortality has been reduced nearly one-half. The chances of doing harm are very slight. No dependence should be placed in it after using the drug for two months. Plummer and Boothby⁹ point out that the use of iodine causes a greater drop in the basal metabolic rate than can be accounted for by the use of the roentgen ray and suggest that the improvement ascribed to rest by Kessel, Lieb, Hyman and Lande^{11 12} in their series of cases treated by rest and removal of foci of infection was due in a measure to the use of iodine.

In properly evaluating the results obtained by treatment in this disease, we must remember that all cases have periods of remission and sometimes spontaneously cure themselves.

While ligation of one or more of the thyroid arteries is seldom necessary in the adenoma with hyperthyroidism, preliminary to removal of a portion of the gland, it is sometimes necessary to utilize this procedure in view of the severe degrees of thyrotoxicosis, and the basal metabolic rate with the physical findings are necessary to be taken into account before

deciding on the procedure to be employed. As a rule, a rate exceeding plus 60 per cent precludes any interference other than a single or a double ligation. For a partial thyroidectomy the rate should be as low as 40 per cent, and certainly not above plus 50 per cent. As stated before, a thorough physical examination with roentgen ray examination of the thorax should be a preliminary to the medical or surgical treatment of any case of goiter.

Too great dependence should not be placed in the basal metabolic rate, for alone it is of little value; when considered with the other findings it is always of extreme value. The physician should remember that the basal metabolic rate represents the heat production of the individual as compared to a normal person of the same height, weight, age and sex, and in a case of toxic goiter this expression can be assumed to indicate the degree of toxicity.

Food Requirements. Greater attention should be paid to the matter of diet, and the food requirements should be adjusted to the needs of the individual, which in most cases is from 50 to 100 per cent above normal. A rate of plus 50 per cent indicates that the patient should have between 75 and 100 per cent more food than a normal person at rest would consume. The report from the metabolism station usually gives the minimal heat production in calories per twenty-four hours, and that can be taken as a basis of the preparation of an adequate diet. While much larger amounts of food are indicated, it should not be given to such a point that the appetite is destroyed.

MALIGNANT TUMORS

Our experience with malignant changes in the thyroid gland has been limited, our series including but one case, female, age seventy-three, with carcinoma of the thyroid gland and all symptoms of hyperthyroidism and a basal metabolic rate of plus 32 per cent. The condition was inoperable and the patient subsequently died.

HYPOTHYROIDISM

Hypothyroidism occurs oftener than one suspects, and so gradual is the let down in the general condition of the patient that he does not perceive it and frequently the diagnosis is made in the course of a routine examination for some other condition. It is interesting that quite the opposite is sometimes suspected, for

we have seen several cases referred to the roentgenologist and surgeon for treatment of hyperthyroidism when hypothyroidism was the cause of the patient's disability. The importance of estimating the basal metabolic rate prior to the institution of any form of treatment in a suspected case of hyperthyroidism is emphasized. We have seen a number of patients with some symptoms of hyperthyroidism, but a normal or subnormal rate, suffer the removal of portions of the thyroid gland with resultant production of hypothyroidism and low basal metabolic rate.

Desiccated thyroid gland in the treatment of obesity should not be given unless the patient be known to be one with hypothyroidism. By far the greater number of over-weight persons are not hypothyroid individuals and, while their weight can certainly be reduced with desiccated thyroid gland, the basal metabolic rate, pulse rate, etc., just as certainly go up. In one case which we observed the physician disregarded the findings of the metabolist and the patient's rate rose to 82 per cent above normal with symptoms of hyperthyroidism.

Thyroxin or the desiccated thyroid gland (U. S. P. IX) are the drugs of choice in hypo-

that a greater portion may be destroyed in the stomach than of the dried gland. These drugs should be given on an empty stomach to promote absorption.

The fact that continuation of X-ray treatment in sufficient dosage may convert a hyper- into a hypothyroid individual is quite as striking evidence of the effectiveness of this therapeutic agent as the similar result, not infrequently observed following surgical removal of the gland. One case of true and well developed myxoedema following thyroidectomy twelve years ago appears. Our lowest rate in myxoedema was minus 44 per cent, which failed to materially change after the administration of thyroxin, although the clinical improvement was quite marked.

The greatest difficulty in the treatment of this disorder is the inability to make the patient continue the use of the drug prescribed even though the results are brilliant.

SUMMARY

1. The accurate differential diagnosis of the various diseases of the thyroid gland is essential for their proper treatment.
2. The proper care of the patient requiring

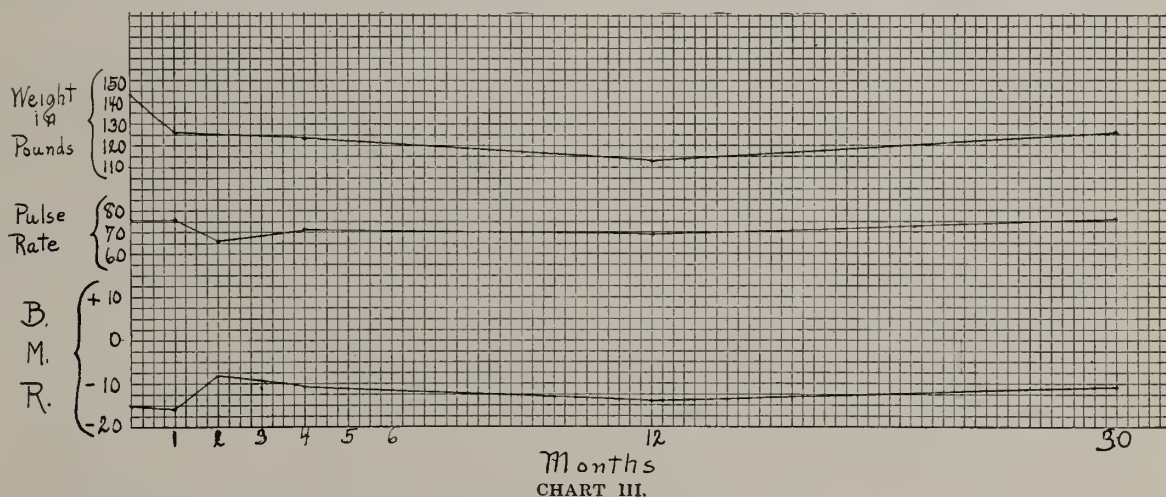


CHART III.
Course of hypothyroidism in 30 cases treated with thyroxin or desiccated thyroid gland.

thyroidism. Thyroxin is the active principle of the thyroid gland and can be accurately assayed, which cannot be said of the desiccated gland, although this preparation in the 9th revision of the U. S. Pharmacopoeia is standardized according to the amount of organically combined iodine, which should be 0.2 per cent. The unofficial preparation should not be prescribed. Thyroxin has one disadvantage in

surgical treatment demands that the surgeon should have had special training in the medical as well as the surgical treatment of thyroid diseases.

3. Toxic adenoma of the thyroid gland is best treated by partial thyroidectomy.

4. In the average general hospital where no standardized technique is carried out, the mortality rate from thyroidectomy in exophthalmic

goiter is sufficiently high as to recommend the use of the roentgen ray in preference to surgical intervention.

5. To those treating diseases of the thyroid gland, the basal metabolic rate is essential in making a differential diagnosis, determining the severity of the condition of those patients suffering from toxic goiter, estimating their food requirements and evaluating the results obtained by the various methods of treatment.

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Garfield Memorial Hospital.

HERNIA OF THE LIVER INTO THE UMBILICAL CORD—REPORT OF A CASE.

By GEORGE H. REESE, M. A., M. D., Petersburg, Va.

Hernia of the liver alone into the umbilical cord is a very rare abnormality. Associated with herniation of other viscera, it occurs about

three times as often; while simple herniation into the cord of intestines only is not such a rare occurrence.

Hernia of the liver into the cord in some form is said to occur once in every 5,184 births. Hernia of the liver only, being about three times as rare, would seemingly occur about once in 15,000 births.

From the limited number of cases found in literature, it is evident that only a small number of these freaks are reported. In the lists of those reported that the writer has secured, it is impossible in many instances to gain any definite information regarding the details of the hernia.

These hernias, like all others, occur in all degrees and sizes, ranging from a small portion of the viscus, to extrusion of the entire organ. In the severer forms associated with herniation of other viscera, the patient is practically everted—the condition being in substance an exstrophy of the abdomen, associated at times with partial exstrophy of the thoracic cavity. Chadwick, quoted by Warren, describes several museum specimens, showing the heart involved in the extruded mass.

These hernias are covered by the remains of the dilated cord, consisting of a thin layer of Wharton's jelly and a thin glistening inner membrane continuous with the peritoneum.

This condition is often associated with other congenital stigmata, cleft palate and eye defects being in the foreground.

The embryological cause of these cases is said to revert to a time between the sixth and twelfth weeks of foetal life. Up to that period of intrauterine development, the cord next to the foetal body normally contains portions of the intestinal tract. To quote Bullard, "at this time the umbilical vesical should atrophy, the intestines recede into the abdominal cavity, the umbilical ring contract and the omphalomesenteric duct be closed." Failure of this physiological process to evolve, or some interference with its evolution is said to be the cause of these congenital hernias.

Why the liver should break away from its usual anchorage and be found floating practically outside the abdominal cavity, is not here explained.

Ritterhaus, quoted by Keene, notes 153 cases of congenital hernia into the cord up to the beginning of 1907. Of these, thirteen were hernia of the liver alone. Since that date ac-

cording to an abstract of the literature on this subject made for the writer by the Editor of the *Journal A. M. A.*, only one additional case of hernia of the liver alone has been reported—that of E. L. Caudill, of Narrows, Virginia. These with the one here reported brings the known total to fifteen. These patients have been treated in various ways ranging from antiseptic compresses, strapping and ligation, to radical operation.

Of the nine cases of liver hernia subjected to radical operation, four lived* and five died—a mortality of 55 per cent. The six treated by compresses, strapping and ligation recovered. These were from a table reporting only cases cured. Those operated upon were given this treatment at periods ranging from one hour to twelve days after birth. Some of them had become infected while temporizing measures were in progress.

Some authors recommend delaying the operation until the second day or later, but to do so would seemingly invite additional danger of infection.

The mortality of all classes of congenital hernia into the cord, regardless of the method of treatment, is given by Keene as 30 per cent. Most of these cases were considered hopeless until the advent of modern surgery.

The tables from which the preceding information was gleaned contain reports of cases of over one hundred years ago. Some of the tables reported only cases cured. Hence, absolute accuracy in estimating mortality and morbidity is impossible, and judgment must of necessity be narrowed down to better known cases of modern times.

The case the writer wishes to report was that of a full term male child, weight about seven pounds, delivered by Cesarean section on account of pre-partum eclampsia.

The mother was a mulatto primipara, seventeen years of age, physically quite robust, with a congenital glaucoma of the left eye, and a negative Wassermann. When admitted, she was given morphine gr. $\frac{1}{4}$ with hyoscine gr. $\frac{1}{150}$ in hope of controlling convulsions; but when the futility of this was evident, she was sent to the operating room and quickly delivered.

The hernia in the child was noted during delivery, and as soon as the mother was disposed of, a careful inspection of this was made. It consisted of a livid mass about three inches

in diameter, projecting into the much thinned cord which led from the summit of the mass. The hernia projected through the abdominal wall about two inches.

Realizing that something had to be done, and that any form of ligation or strapping was out of the question, the patient was prepared for immediate operation. As he had been considerably narcotized by the morphine and hyoscine given his mother, the operation was started without any additional anaesthetic, after bathing the abdomen well with alcohol.

The sac was first opened for inspection of its contents, and a short survey revealed the entire mass to be the liver, dome forward unattached to anything except the cord and to this only by a cob-web like filament of tissue arising from the crest of the liver. The vessels of the cord were re-tied where they entered the liver, the sac cut away from the margin of the opening, care being taken to denude the edge of the abdominal wall. As this proceeded the edges of the wound were picked up by forceps. The liver was then shoved back into its normal position. When the cord was removed a hole was left that seemed hopeless. Clearly any ordinary method of closure promised but little hope of success. Finally, it was decided to try a purse-string suture introduced from the peritoneal side to the subcutaneous tissue, for the following reasons:

1st. To reduce as far as possible the size of the opening, which might permit of an ordinary abdominal closure, protected by a good tension suture.

2nd. To bring as much muscle and fascia as possible toward the midline, to serve as a basis for a future operation, should any be necessary.

3rd. Because of the realization that any form of suturing was liable to cut out at least in part, and that a suture from the peritoneal side, on account of the rapid reparative action of the peritoneum, while cutting might, if not infected, be followed fast enough by plastic exudate to fill the gap produced.

4th. A suture here, though under tension and cutting, would be less liable to be followed by infection than skin sutures.

Accordingly, with a curved needle and iodized catgut a deep purse-string suture was placed nearly one-half inch below the inner margin of the wound, from the peritoneum to the subcutaneous tissue. When this was com-

pleted, gentle efforts were made to close the opening, the baby being flexed and tension on the suture ends maintained. The opening gradually narrowed and to the surprise of every one concerned, closed. As this was more than had been anticipated, in spite of the horrible pucker of the wound edges, it was decided very shortly to let well enough alone. The skin edges were straightened out as best they could be, and approximated with a silk-worm gut. Over this was placed the dressing, held by adhesive straps completely encircling the body, applied from the hips up forcibly enough to produce considerable pressure, with a double purpose in view:

1st. To take all possible tension off the sutures.

2nd. To keep the liver up where it belonged in the hope that it would stay there.

All this was done without any other anaesthetic than the morphine and hyoscine the boy had received from his mother. Not one cry nor whimper escaped him during the operation, nor did he seem to be in any degree shocked.

The next day his temperature was 102 per rectum. It decreased until it became normal on the third day. On the seventh day the lower straps were cut, the dressing gently elevated and the wound inspected. It showed no signs of infection. The dressings were replaced and strapped as before, and removed on the eleventh day. By this time a readjustment had taken place in the appearance of the wound. It was seen to be a vertical scar. The skin sutures were removed; the wound dusted with zinc stearate, and the dressing reapplied as in the first instance. On the fourteenth day all dressings were removed. The wound was completely healed, seemed to have a solid front and presented no evidence whatever, except a vertical scar, of having been the site of a hernia.

On the twenty-second day, both mother and child were sent home alive and well.

The child developed glaucoma of the left eye about two months after birth, and about two months later influenza, followed by broncho-pneumonia, from which he died.

In conclusion, the writer would urge immediate radical operation for these cases. The field at birth is more nearly sterile than it will ever be afterward. The nervous system is not yet so sensitive to stimuli, and the danger of

shock is small. After operating, be certain to apply a dressing that will relieve all tension on the statures. Many good operations have been rendered abortive by imperfect dressings, while mediocre surgery has frequently been crowned by success simply because the dressings completed the operative design.

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3 North Adams Street.

CHOLECYSTOSTOMY VERSUS CHOLECYSTECTOMY.

By B. M. BAKER, M. D., Norfolk, Va.

When I think about gall-bladder disease, I am very pleasantly reminded of my good old friend and patient, John Turner by name, eighty-five years of age. Some ten years or more ago he sought my aid because he was suffering from "dyspepsy and misery in his stomach." The ordinary survey, history, examination and X-ray aid, brought me to the point when I was forced to tell John that he must part with his gall-bladder. This caused him to look sad and, without saying very much, he left me. Not long after, however, he returned saying, "Doctor, God knows sump'n will hev ter be did wid my stommick." When I repeated my former statement about his gall-bladder, he looked up and said, "Doctor, ah suttently duz like dem 'greens' an' ah hates to gib 'em up." Well, I replied, what makes you think you'll have to give them up? His answer was, "You can't eat 'greens' wid no gall-bladder, kin yer?" Upon reassuring him that the gall-bladder was'n't a necessity in the eating of 'greens,' he was at once a happy man, and said, "If dat's so, jes' go 'haid an' do whut yer gwine do, but I sho' did allus think dat culler'd folks an' cows had ter hev' an onusual big gall-bladder to he'p em dejest all de 'greens' dey eat. An' anyway, please don' fergit, when yea is in dat locality, ter fix things right so dere won' be no question 'bout my stommick takin' keer uv collards too."

Because of the very prompt and satisfactory response to a letter sent to the heads of prominent surgical clinics, I am armed, I trust, with a compilation of facts from men worth while. As expressed by one of these gentlemen,

"The truth is to be found somewhere between the two."

That the gall-bladder is supplied to the human being, and *some* of the inferior animals, for some good purpose, there can be no doubt in my mind. In other words, it has a useful function without question, but it has been clearly demonstrated that we can all get along without the organ, and are we not better off with the bile flowing directly from the liver cells through the liver ducts to the intestines than to continue using a diseased gall-bladder with the inflammation starting as it does in its mucosa, and which, if unchecked, will lead, without doubt, to subsequent pathology in deeper tissues?

We are a little hazy from a physiological standpoint as to the normal function of the gall-bladder. From an embryological point of view, it seems that in some species it can be well done without, and that in man it is a specialized development in the evolutionary scale. Animal experiments on its removal would tend to indicate that no ill effects result, and this is based upon a great mass of experimental observations.

On the other hand, the gall-bladder can be quite definitely shown to undergo slow and, more or less, rhythmic contractions which can only be interpreted as being for the express purpose of expelling the contained bile into the duodenum. As to whether it adds or subtracts from the bile by the process of secretion or absorption, nothing of real value can be said. Certainly at the end of the common duct there is a sphincter guarding the orifice, and this is supplied with nerves in connection with those to the bladder itself, whereby a reciprocal innervation is the result (alternate excitation and inhibition).

However, poor is the physiologist who cannot realize that just as truly is medicine and surgery indispensable to him, and certainly gall-bladder surgery is a case in point.

The results of operative procedures are just as conclusive, if not more so, than the laboriously and scientifically controlled laboratory observations. Since it has been demonstrated that we can get along very comfortably without a gall-bladder, physiologists can take this as substantial evidence that whatever their observations point to, we all must consider the gall-bladder a specialized reservoir and not an indispensable one. If the results of cholecystec-

tomy were the reverse, then we would have to bow to the physiologist and say that he was justified in maintaining a specialized function for the organ.

A review of the literature from many of the most reliable clinics brings out the fact that in all early gall-bladder, duct and low grade pancreatic diseases, and where there are no contra-indications, unquestionably the bladder removal is the operation of choice. The trend of action for years has been steadily moving in this direction and the predominance of removals over drainage is so great that there can be little doubt of its wisdom in the hands of competent surgeons.

1. It is more suitable for more conditions.
2. It is the operation of the early stages of gall-bladder disease.
3. It can be done without drainage and, therefore, the convalescence is much shortened.
(May I digress a little by asking for free discussion of the point as to whether these operations can be safely done without drainage, made necessary by difficulty of prompt and satisfactory healing of the upper abdomen, and the prevention of possible hernia, and caution about having the stitches in long enough to get firm union?)
4. It accomplishes more.
5. It is followed by few adhesions.
6. It makes the likelihood of secondary operations less, which is attended with great difficulties in the upper abdomen.

Cholecystostomy, or gall-bladder drainage, is indicated where cholecystectomy is impracticable in advanced gall-bladder disease when complicated by advanced liver, gall-bladder, duct and pancreatic disease, and especially in those cases where jaundice is present. It is indicated where hurry in operating is necessary, especially in complicated cases, viz., in the very acute cases, to tide over a crisis, and as a forerunner of a subsequent cholecystectomy. It is indicated where there is, or where it is believed there probably will follow, a stenosis of the common duct, and in the presence of deep-seated and far-advanced disease of the duct, liver and pancreas, in which conditions there is greater necessity for more prolonged and thorough drainage. It is further indicated in the far-advanced and obstruction cases to eliminate the question of the possible difficult and dangerous procedure of re-constructive work on the common duct subsequently.

This brings us to the question of gall-bladder drainage and whether it shall be internal or external, and, if internal, the mode of procedure. Recently Dr. John Deaver has experimented along this latter line. He claims for it more satisfactory and more prolonged drainage, lessening the likelihood of more rapid and extensive pathology taking place because of the thorough drainage. Of course, this is new and time has not elapsed for a thorough test, but with a gall-bladder whose tissue is still sufficiently healthy and with patulous hepatic and cystic ducts, I see no reason why the procedure of anastomosis to stomach or intestine should not be feasible and satisfactory, as claimed by Dr. Deaver.

I cannot leave this subject without bringing out clearly what is held to by great men in our profession, namely, the difficult and questionable procedure of draining the gall-bladder or ducts satisfactorily with a rubber tube and, if so, then the suggestion of Dr. Deaver for internal drainage in certain cases by anastomosis is the more indicated.

Now, one more point, and I am through. In the advanced and serious cases, especially the ones accompanied with jaundice, the matter of estimating the percentage of liver function is most important in the choice of your surgical procedure.

I am indebted to the Chief of the Pathological Laboratory of Lankenau Hospital, Dr. Riemann, for the following brief explanation of hepatic function:

"An accurate estimation of hepatic function is of equal, and as we have come to believe, or greater importance than an estimation of kidney function. The tests which have been devised for determining the functional ability of the kidney are eminently satisfactory from the practical point of view, but unfortunately those which have been revised for the same purpose concerning the liver have not given the results which are necessary for an accurate decision. There are probably a number of reasons for this. The chief function of the kidneys, as far as we know, is excretion, and this product of excretion can be accurately collected and analyzed; furthermore, the kidney deals chiefly with end-products, and our knowledge of the metabolism of end-products is far more complete than our knowledge of the intermediate products of metabolism with which the liver has a good deal to do. There is no one

who will deny that the function of the kidney is complicated; the function of the liver is much more so, because it is concerned not only in excretion but also in secretion. Substances are sent by the liver in two directions, bile toward the intestines, and sugar, urea, etc., toward the blood. The liver is greatly concerned in carbohydrate metabolism, but it also has to do with the metabolism of proteins and fats. In order, therefore, to make an appraisal of the functions of the liver, we must necessarily examine its ability in regard to all of these factors. We need hardly call attention to the difficulties in collecting all the bile, and if all is not collected over a given test period, the results, of course, are necessarily inadequate. There is a probability that if one function is diminished, others are apt also to be affected, but we have no proof of it any more than we have of the relative suppression of function of one to the other; furthermore, there is always the possibility that one function may be impaired and the others scarcely interfered with. In brief, the quantitative relations are entirely unknown, and, in addition, the relative importance to the organization as a whole of the individual functions is also unknown to any mathematical degree. Furthermore, the liver has a very large margin of safety, as large as, if not larger than, most other organs of the body. This means that for any test to be of value, the results must indicate wide differences. From these considerations, it is clear, therefore, that examination with one substance or another, as, for example, phenoltetrachlorophthalein, can give results which are short of the theoretical and also of practical desirability. We feel that allowing the patient to remain in bed for a few days while careful examinations are made of those constituents of the blood which are ordinarily examined under several different circumstances, diet, water intake, etc. together with functional tests of the urine, are more valuable than one single test applied directly to the liver. In our hands phenoltetrachlorophthalein, if relied upon with nothing else, is liable to prove disappointing, but if used in conjunction with the other data, it has a definite auxilliary use."

DISCUSSION.

Dr. R. L. Payne, in connection with the question of drainage, said that, when practicable, he used as a substitute for internal drainage, an operation in which the gall-bladder itself was opened and attached to the peritoneum, forming a temporary fis-

tula. He also brought out the fact that closing the abdomen without drainage after cholecystectomy had not been found a satisfactory procedure.

Dr. W. B. Martin brought out the fact of rarity of gall-bladder diseases in the negro, especially to the formation of stones.

THE DETERMINATION OF ACTIVITY IN PULMONARY TUBERCULOSIS.

By DEAN B. COLE, M. D., Richmond, Va.

The term "active" is so extensively used in connection with pulmonary tuberculosis that it has all but become the one qualifying phrase. Formerly we heard a great deal about incipient tuberculosis and arrested tuberculosis, but now the all-absorbing topic in connection with tuberculosis is that of activity. For several years I have been asking physicians, patients and others who use the term "active" the question, "What do *you* consider activity in tuberculosis?", and the answers would fill a volume if not form an encyclopedia. During the past year I wrote to five tuberculosis clinicians, who are numbered among the most prominent in America, asking each of these the same question, "What do you consider activity in tuberculosis?" Each of these men was good enough to reply and explain, but they failed to agree. However, all make it plain that activity is the wrong road to recovery.

In the diagnosis and treatment of pulmonary tuberculosis the physician must consider not only the disease but the patient; and, in so far as the patient is concerned, the activity of the disease is the most important question. All of us speak glibly and profoundly of "activity," but few of us care to define it.

In the Army I have seen many men suffering with tuberculosis classified as inactive because from their lungs could not be produced sufficient or satisfactory rales. *Symptoms*, unless severe, were given but little consideration. And, again, patients who were apparently well except for the presence of tuberculous rales, were classified and frequently treated as active.

On the other hand, at one sanatorium I have seen one patient classified as active and another as inactive where the difference in symptoms was no greater than two to four heart beats per minute or from two- to four-tenths of a degree in temperature throughout an observation period of one week. However, this classification is only one of the factors that determined the treatment of each individual. Also, patients in whom symptoms were sufficiently

pronounced to be almost but not quite enough for a classification of active are classified as "potentially active," and treated accordingly. Systemic symptoms, such as afternoon rise in temperature and acceleration of pulse rate, are considered only in relation to activity or degree of activity, and not as diagnostic criteria.

Some specialists prefer dividing the term "active" into "clinical" activity and "pathological" activity; the former being in terms of the patient and how he reacts to the disease in so far as can be determined by *clinical* symptoms; and the latter how the disease affects the patient *locally*, as shown by physical findings, X-ray examinations, sputum and other analyses. Most clinicians who make the distinction of "clinical" and "pathological" activity, include under the latter any change taking place in the lesion, whether for better or for worse. To this, Dr. Krause objects and perhaps correctly. He would speak of a change in the lesion for better as *retrogression*, and for the worse, "activity."

Writing in Nelson's Loose Leaf Medicine, Krause says in part as follows: "From infection to detection lesion pursues characteristically a halting course; there are periods of progression and there are periods of retrogression; there are times when it extends, and intervals when it remains confined to certain limits. But, until final healing occurs, we can be certain that there is never absolute stasis; at any given time sclerosis is going on and keeping ahead of necrosis, or necrosis is temporarily gaining the upper hand; and throughout the whole period of its existence, every lesion has at any particular time its own peculiar resistance or accessibility to outside influences, to forces or stresses to which it may be subjected by the surrounding tissues. Because of continually changing local or constitutional activities, those tissues that enclose tubercles are experiencing wide fluctuations of physiological (normal or pathological) activity, and these will be reflected upon the tubercle. In fact, it cannot be otherwise."

Also in another chapter of the same book, Dr. James Alexander Miller says in part as follows: "The clinical manifestations of the disease divide themselves into two main categories, the focal, caused by the lesions in the lung, of which the physical signs are the most important evidence, and the constitutional or systemic, which are indicated by the symptoms

presented. Of the two, the constitutional symptoms are the most important both for the diagnosis of the disease and for the appreciation of its degree of severity or activity."

Dr. Charles Minor, in discussing activity, says in part: "I would try to define it as that condition in which the disease is making progress and not being held in check by the resisting powers of the body. This is only safely estimated by the *symptoms* of the disease, though to the experienced, physical signs, like moist rales, progressively new lesion-breath sounds, advancing percussion changes, signs of softening and excavation, are a most valuable adjunct. In a case with very slight and lessening symptoms, we can greatly discount any but the most pronounced signs. Whereas, however good the signs, advancing symptoms are always serious."

Dr. E. R. Baldwin, on the other hand, says in part, "I consider all forms of tuberculosis active that are not healed so that the ordinary wear and tear of life has no further effect in arousing reactions. The expression "potentially active" has been adopted by the staff at the sanatorium here and I think it is foolish to discriminate between pathological and clinical activity."

The present classification of the United States Veterans Bureau is as follows: Active; non-active; unimproved; improved; quiescent; apparently arrested; arrested; apparently cured. This seems to me as an attempt to get in so far as possible a fool-proof classification. However, in spite of this, many differences and difficulties arise. It may make a great difference to a tuberculous veteran whether he is classified as active or quiescent. I have seen claims disallowed because claimants were classified as quiescent instead of active. Also, I have seen some whom I classified as active at time of examination whose claims would have been disallowed if classified otherwise. These men were hospitalized and frequently from three to six weeks elapsed from the time they were examined for the Veterans Bureau before they were admitted into a government hospital; during this time many of these men were resting, as instructed, and by the time of admission to a government hospital, active symptoms had subsided and they were properly classified as quiescent. However, there is a United States Veterans Bureau regulation number 20 B, Section 7033, which is as follows: "A Diagnosis

of Active Pulmonary Tuberculosis shall be considered as established where two or more of the following findings are shown.

(a) Sputum positive for tubercle bacilli.

(b) Pleurisy with effusion.

(c) Cavity or pneumothorax diagnosed by stereogram and physical examination.

(d) Active tuberculous lesion evidenced by definite physical findings, indicating a tuberculous involvement, most characteristic of which are typical indeterminate, localized, persistent moist rales (commonly called crepitant and subcrepitant in the upper lobes), increased or manifested on the first inspiration after a forced expiration followed by a cough.

(e) X-ray findings, of which Roentgenograph stereograms manifesting cottony densities, cirrhous clouding or areas of rarefaction surrounded by annular ring shadows, interpreted as cavities, diagnostic of tuberculous infiltration, caseation or cavitation.

(f) Active tuberculous lesion evidenced by definite toxæmia of probable tuberculous origin, manifested by one or more of the following symptoms: fever, loss of weight, and rapid 'resting' pulse."

The above Section 7033 is from the United States Veterans Bureau regulation number 20 B, dated January 5, 1923, and is again quoted under United States Veterans Bureau Regulation No. 73, dated July 29, 1924, which indicates that it has never been annulled. However, on January 10, 1924, was issued District Instructions No. 339—Re: Roentgenography in the Diagnosis of Phthisis, one paragraph of which is as follows: "The activity or inactivity of a tuberculous lesion is to be determined by symptoms, as neither physical signs nor radiography can determine this point. Physical signs have frequently brought out lesions and extensions invisible on the X-ray; while the latter have shown *only rarely* ones not found by the former. Although the value of the X-ray in the diagnosis of early tuberculosis still remains to be proven, there can be no question as to its advantages in showing the extent of the lesion and in the detection of encysted empyema or a partial pneumothorax." Obviously the same author did not write both Section No. 20 B and District Instructions No. 339. It is also very apparent that one or both should be revised. To me the former No. 20 B seems a most comprehensive synopsis of the entire problem of activity in tuberculosis.

Must we not decide if the disease constitutes in itself a handicap? Is it likely to handicap the claimant more as time passes or will the disability become less? Admitting the difficulty, if not the impossibility, of making exact percentages of handicaps from tuberculosis such as are made in cases of surgical injuries, where compensation is involved, we may still determine with some degree of proximation if two factors are kept constantly in mind: First, the disease may be minimal in extent and yet give rise to symptoms so pronounced as to make immediate treatment necessary. Second, at the time of examination claimant's symptoms may be negligible and yet physical and X-ray findings may show a lesion so extensive as to involve one or more lobes, even all lobes, making claimant potentially active at all times until healing takes place. After all, legislators and others who use the term active in connection with tuberculosis must have in mind physical handicap caused the individual by the disease rather than just a difference of a few heart beats or a little temperature, or a few rales in the chest and as is so aptly expressed by Dr. Baldwin's definition, "I consider all forms of tuberculosis active that are not healed so that the ordinary wear and tear of life has no further effect in arousing reaction."

Medical Arts Building.

VACCINIA OF EYELIDS IN AN UNVACCINATED BOY

By CHARLES A. YOUNG, M. D., Roanoke, Va.

Ophthalmic Literature for the years 1921 (Vol. 17), and 1922 (Vol. 18), and The Ophthalmic Year Book for the years 1923 (Vol. 19), and 1924 (Vol. 20), report no cases of vaccinia of the eyelids in unvaccinated persons, although The Ophthalmic Year Book of 1923 (Vol. 19), gives the following abstracts of vaccinia of the eyelids produced by auto-inoculation.

In Ball and Toomey's patient (Vaccinia of Eyelids by Homoinoculation, *J. A. M. A.* 1922, V. 79, pp. 935-936), disturbance about the eyelids were noticed on the inner end of the left upper eyelid, one week after a first vaccination upon the thigh. It consisted when first seen of a small "pimple tipped with a yellow head." The vesicle grew so rapidly that it trebled the diameter of its base within two hours. It did not, however, increase in height. The areola about the vesicle spread rapidly

and involved both eyelids during the night. A second palpebral vesicle (on the lower lid) was first noticed about two weeks after the appearance of the first. Chemosis developed rapidly. Six satellite vesicles appeared several days later, with preauricular adenopathy. There was no constitutional involvement. The indications were that there would be no scarring or disfigurement, except a small translucent stellate scar over the inner end of the upper palpebral margin.

Sedan (Vaccinal Ocular Affections, *Ann. d'Ocul.*, 1922, V. 159, pp. 604-610) observed a case of ocular localization of vaccinia in a child aged six months, in which the inoculation against small-pox was conveyed from the thigh, the seat of vaccination, to the eye. The constant presence of chains of streptococci endangered the making of a correct diagnosis and prognosis. The benign nature of the corneal complication and its rapid and happy termination was of especial interest, since this conjunctival infection nearly led to the injection of an autogenous streptococcic vaccine. Conjunctival inoculation is apparently less serious than that of the cornea direct.

Robert's patient, a ten year old girl (Intraocular Hemorrhage Following Vaccination, *A. J. O.*, 1922, V. 5, p. 397), after vaccination developed a sore on the left lower lid similar to the one on the arm. The cornea became hazy and the anterior chamber filled with blood. Present vision only perception of light.

CASE REPORT.

C. M., white boy, six years of age, referred to me December 1, 1924, by Dr. W. M. Otey, on account of marked swelling and inflammation about right eye.

History.—On November 25th, parents noticed a condition which they thought to be styes (one lesion on the middle portion of lower lid and the other toward inner canthus of upper lid), both being at margin of lids. November 28th, child had fever and lids were more swollen. November 29th and 30th, child still had fever and both lids of right eye and right side of face were swollen.

Patient had never been vaccinated, but had been sleeping with his brother, who was vaccinated during the first week in November and evidently carried the virus from his brother's arm to his own eye.

Examination.—When first seen, on the night of December 1st, both lids of right eye were

markedly swollen and indurated, with upper lid extending for a distance of six m.m. over the lower lid. Upper lid has four confluent ulcerated lesions, covered with a dirty grayish white membrane. On lifting upper lid, similar lesions were seen on lower lid, all the lesions being on or a little below the margin of the lids. Right side of face was markedly swollen, extending from the lower jaw below, to the supra-orbital region above, and extending backward to right ear. Pre-auricular gland on right side moderately enlarged and tender to pressure. Seven satellite vesicles, ranging in size from one and one-half to three m.m. in diameter, were to be seen on forehead, nose and lids of left eye, three of them being umbilicated.

On December 2nd, being unable to separate lids and examine cornea, Dr. Otey anesthetized the patient. With retractors the lids were forcibly opened, the conjunctiva was found to be very chemotic, the cornea clear, and the pupil two and one-half m.m. in diameter. Examination on December 3rd showed swelling of lids lessened, no change in the chemosis, cornea clear, pupil still contracted although atropine had been instilled during past twenty-four hours. On December 4th, there was no change except the ulcers were covered with a thick brown crust. The cornea was clear, and pupil dilated. Began use of potassium chlorate solution, grains 5 to the ounce, as hot fomentations. The following day, December 5th, there was very marked improvement, swelling was much lessened, and the patient's lids opened for the first time without the use of retractors. The pupil was dilated, and a small superficial opacity (one and one-half m.m. in diameter) of cornea appeared below pupil and 3 m.m. above limbus. The opacity did not stain with fluorescein. On December 6th, chemosis and swelling of lids were much less pronounced. Opacity of cornea was then only 1 m.m. in diameter, and did not stain with fluorescein. Pupil was dilated. On December 8th, patient could open lids. There was very little swelling of lids and conjunctiva. Crusts had been thrown off, leaving clean saucer-shaped ulcers at lid margins. No cilia present in ulcerated areas. Pupil was dilated, the opacity was still smaller and did not stain with fluorescein. On December 11th, the lids could be opened about two-thirds, both lids being slightly swollen, the ulcers were

clean in appearance, and there was no crusting except on one lesion of upper lid toward internal canthus. Cornea clear, the opacity having been absorbed. Pupil was dilated. O. D. vision (under atropine) with plus 1.75 S was 6/15. O. S. vision without glasses or cycloplegia was 6/12. On December 31st, right lower lid showed a scar at the ciliary margin about three and one-half m.m. in diameter very similar in appearance to the scar seen on the arm following vaccination. Right upper lid showed a similar scar at the ciliary margin, this scar being two and one-half m.m. in diameter. Cornea was then clear, and the pupil active, reacting to light and accommodation. There were no cilia present in the site of the scars.

Diagnosis.—The diagnosis was made from the presence of the umbilicated vesicles on the adjacent skin and from the history.

Treatment Used.—Solution of atropine sulphate (1 per cent), one drop in right eye three times a day. Hot fomentations of potassium chlorate, grains five to the ounce, applied continually, as recommended in Swanzy's Diseases of the Eye (Werner), page 574, acted almost miraculously. Boric acid ointment was applied to lids every four hours.

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SOME QUESTIONS INVOLVED IN THE TREATMENT OF FIBROIDS OF THE UTERUS.*

By CHARLES R. ROBINS, M. D., Richmond, Va.
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In the light of our present knowledge and experience, what treatment is to be advised in fibroid tumor of the uterus, and what conditions should lead us to recommend a special line of treatment? Such an inquiry opens up a rather large field and we will not undertake at this time to cover all of the questions involved. We will, however, present some of the problems which are of more common occurrence, and in which various reasonable doubts may exist as to what treatment will best serve the welfare of the patient.

The first inquiry that suggests itself is: Should we ever tell the patient that we would not advise any treatment for the condition found? I believe that there are cases of fibroids in which this advice should be followed. Unfortunately, however, such cases

*Read before the Richmond Academy of Medicine, March 10, 1925.

are comparatively infrequent. But in cases where the fibroid is small and where the patient is young and with the prospect of matrimony or pregnancy, and if the fibroid is not producing symptoms and if they appear to be located in the upper portion of the fundus, especially if they are subperitoneal, the patient can be told that the tumor at present is small and of little consequence and she can be directed to present herself at intervals for examination in order that we may determine the rate of growth. It is perfectly possible for such a uterus to become impregnated and for the patient to be delivered without operative procedure. When it becomes apparent, however, that the tumor is growing, treatment should be instituted before the pathology becomes too great.

In what cases is myomectomy to be advised? The answer to this question involves likewise consideration of age, matrimony and pregnancy. There is no more attractive appeal than to be able to remove the tumors and to leave a functioning organ behind. Under many circumstances myomectomy is to be advised, but we have always to remember that our efforts at conservatism may and probably will be disappointing. The difficulty here is that the most characteristic thing about fibroids of the uterus is that they are multiple, and while we may succeed very well in removing all of the nodules that may be detected, we must rest assured that others are doubtless present that cannot be detected, that will grow and produce pathology as much as the nodules that have been removed. It is not an uncommon experience to find that in one or two years' time following myomectomies we are confronted with a uterus larger and more nodular than it was at the time of the original operation. In my own experience it has been quite uncommon to secure permanent results from myomectomy. However, under conditions already mentioned, it may seem to be worth while to avoid radical operation. I think, however, that the case should be fully explained to the patient or to her family so that there may be no embarrassing explanation when a second operation is called for.

In this connection, I would like to call attention again to a type of operation suggested by me a few years ago. I refer to the operation of reconstruction of the uterus. It will occasionally happen that we will find a case of

fibroids in which this operation presents great possibilities. When the nodules are located in the central portion of the fundus it is possible that by a V-shaped resection we may remove not only the fibroid nodule but the adjacent tissue. The two lateral portions of the uterus can then be united by suture and a very nearly normal uterus left. We will then have a cavity continuous with the cervix and the Fallopian tubes. I have had several cases in which this operation has been performed in which pregnancy has occurred and the patient has carried the child to term and had a living child. One rather interesting aspect of the case to me is that in two cases which I have been able to trace for a period of years there does not appear to have developed any further nodules. It may be that there is something in removing the adjacent tissue that it is more efficacious than simply cutting out the fibroid nodules.

If the case is one in which a hysterectomy is indicated, the question arises, shall we do a supra-vaginal hysterectomy or shall we remove the cervix also. I believe that the preferable operation is to make the hysterectomy total by removing the cervix. The reason for this is that the cervix when detached from the uterus serves very little purpose. It rapidly atrophies as a rule but its retention introduces a serious question. Any tissue that is separated from its normal connection becomes marooned and I am quite certain is liable to undergo degeneration. This is especially true if the cervix is already pathological, either as a result of laceration, infection or any other condition. I have had cases in which carcinoma has developed in such a cervix. My rule, therefore, is to remove the cervix unless there is some very good reason for leaving it. In fat women and particularly in women who do not have the uterine attachments relaxed from pregnancy, the removal of the cervix is sometimes so difficult as to make it advisable to take what risk there may be of leaving it rather than to do a dangerous removal. I have found, however, where the proper technique is followed, that it is very little more difficult to do a total hysterectomy than a supra-vaginal.

Should the ovaries be removed or left in when a hysterectomy is performed? This question has been the subject of considerable debate, and it is probable that it has not been settled yet. I am inclined to believe, however, that very little is to be gained by saving

the ovaries after menstruation has been ended by the removal of the uterus. I believe there is very intimate connection, as far as the well-being of the patient is concerned, between the function of the ovaries and menstruation. The two to me appear to be interdependent. What I mean to say about this is that the secretion of the ovary is complemented or corrected in some way by the menstrual flow, and that the two make a complete cycle. If this is true, I sincerely believe that there is liable to be more disturbance if the ovaries are allowed to remain and the uterus removed than if both are removed at the same time. I remember quite recently receiving an inquiry concerning a patient on whom I had done a hysterectomy. Her physician felt that her symptoms had been induced by the removal of the ovaries. When, however, I looked up her record, I found that for some reason the ovaries had been left in in her case.

This leads us naturally to this inquiry: What is the effect upon the patient of the removal of the uterus? The answer to this is, I believe, largely contained in the age and condition of the patient. I can only speak from my own experience. For some years I have been doing by preference total abdominal hysterectomy, including the removal of the ovaries in cases where I thought it indicated. At first I was surprised to find that the dire things that I expected as a result of a necessary operation did not occur, so that now my feelings and expectations have changed. I have found that where a woman has been married, and particularly if she had had several children and if she is approaching the period of the menopause, that such an operation, by anticipating the menopause for a short while, is not likely to produce any grave symptoms. It is true that every now and then we will have a case where the symptoms are aggravating and annoying, but in my experience this is the exception and we may reasonably inquire if these exaggerated symptoms may not be due to some other cause rather than to the menopause. In other words, in unstable types, a small cause may produce very exaggerated symptoms.

We next have to consider radiation in the treatment of fibroids, either by radium or X-ray, or combined. I am free to confess that I am a very frank admirer of this method of treatment in many types of cases, but I have also to confess that I have not made use of it

very largely in the treatment of fibroids. I have often thought that I would go over the cases of fibroids in which I have operated with a view of selecting those cases in which radiation would have been the better procedure. While I have not done this, I am rather convinced that the proportion of cases in which radiation is indicated is comparatively small when the total number of fibroids is considered. I do not believe that radiation is going to supplant operation, but rather that it will be reserved for certain cases where for one reason or another it is particularly indicated. There is no difference between the two as far as the results secured are concerned. Radiation for fibroids produces the menopause as surely as operation, so to that extent it cannot be considered a conservation procedure. The mortality rate is the main talking point, but I am not so sure that this discrepancy is as great as would appear on the surface. In considering the mortality rate in operation for fibroid, cases of all sorts and descriptions are included. Many of these would be totally unsuitable for any other method of treatment than operative on account of the complications that exist. We have, too, to consider the condition of the patient following radiation just as well as we consider the condition of the patient following operation. Suppose, as is most frequently the case, there are other conditions that require operation, such as appendicitis, adhesions, tubal inflammation, lacerations, etc., it would hardly seem reasonable to treat the uterus by radiation and then operate for the other condition. I believe the careful examination of patients suffering from fibroids and analyses of their symptoms will demonstrate that there are comparatively few cases of fibroids presenting for treatment that do not have complications that require operation. In what percentage of cases is the fibroid obliterated, and in what is it merely reduced in size, and is the improvement temporary or permanent? I think we have also to consider the feelings and sensations of the patient following treatment by radiation. Every now and then I see such a case in which the patient complains a great deal and some in which they date their symptoms from the use of the radium. I do not know to what extent such symptoms come on following this line of treatment, but I have seen some in which they apparently were quite severe.

I do not claim in this paper to have settled anything. I have simply given expression to thoughts that have occurred to me in dealing with these cases. I have had such a large number of cases that have been treated by operation and that have not only had the tumor removed but their health restored, and have entered into the activities of life with renewed vigor and youthful enthusiasm, that I cannot feel that such operative measures, as have been indicated, are to be accepted as a last resort. I would, therefore, hesitate to adopt as a routine any other procedure until I had become convinced that it would offer results as good. While radiation has a distinct field of usefulness and it will be indicated in a certain percentage of fibroids, I do not believe the percentage will ultimately prove to be large; neither do I believe that it will ultimately supplant operation.

THE ONE SYMPTOM THE PUBLIC SHOULD KNOW IN TYPICAL ACUTE APPENDICITIS.*

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Appendicitis has become a household word. It is talked in public schools, on the streets and in the country.

Some feel complimented by having this popular or fashionable disease. A doctor was called in to see one of his fair patients and, after thorough history and physical examination, he told her that she had appendicitis; she blushing replied, "Doctor, you flatter me!"

It is so common a subject that it does not cause the fear and fright that it once gave. This is due to the fact that it is more easily diagnosed and we know more of it as a disease. These truths are becoming common every-day knowledge and information, and well that it is. However, with this information the mortality rate is still increasing. It was estimated in 1904 that about 10,000 patients died of appendicitis annually in the United States. It was shown some days ago by statistics that the deaths had gradually increased from 10,000 to 16,000 during the past two decades in the United States. This is appalling when we realize that these deaths could be reduced almost to a minimum, and thus restore the poor

victims to their families, friends and glorious life, if early diagnosis is made and proper treatment promptly instituted. *Around this truth hangs the law that governs those that perish in acute appendicitis.* It is the same law that governs mortality in tuberculosis and in cancer. Early diagnosis, early proper treatment and your death rate is reduced to a minimum in tuberculosis and in cancer. Delay and cod-liver oil in tuberculosis, and delay and salves in cancer play the same role in the progress and cure of these diseases, as delay and the ice-bag play in the cure of acute appendicitis. Such a course of management inspires false hope, and in many cases passes them into the beyond. It has been truly said that when a patient dies of appendicitis, some responsible person has made a blunder.

Our aim in this paper is an attempt to simplify early diagnosis in the majority of cases that proper surgical treatment may be promptly executed. It is not so much as to who does the operation, as it is in the promptness of the operation.

The late John B. Murphy wonderfully simplified the symptoms and signs of acute appendicitis when he reduced them to four and in order of their respective appearance, namely: pain, nausea, McBurney point—local tenderness,—and temperature. To this he later added a laboratory corroborative test, which was an increased leucocyte count.

For convenience, we will discuss these symptoms and laboratory test, in the reverse order named in the foregoing:

Leucocytosis. This is not pathognomonic of acute appendicitis. We find a leucocytosis in other acute inflammatory abdominal and pelvic conditions. Usually we have an increased count in acute appendicitis within the first twenty-four or thirty-six hours after onset, ranging from normal to 30,000. More frequently we find the count from 12,000 to 20,000. However, in some acute cases we find no increase in the leucocyte count after checking by repeated examinations. Thus, we can dismiss leucocytosis as pathognomonic of acute appendicitis, either by itself or in combination with other symptoms and signs.

Temperature.—This is not a constant symptom in acute appendicitis. The late John B. Murphy once said that you always have a fever in acute appendicitis. Some years afterwards,

*Read before the Southside Virginia Medical Association, at Norfolk, March 10, 1925.

he contradicted this by saying that he had recently had two acute appendiceal conditions that had no abnormal temperature. Besides the lack of fever in some cases, there are many acute abdominal conditions that give a rise of temperature not connected with the appendix. So we have to discard the temperature as a definite symptom pointing us to the acute pathological appendix.

McBurney Point Tenderness.—Any pathology of the lower end of the cecum, beginning of ascending colon or ureter at this point will give tenderness and soreness in the McBurney region. On several occasions have we operated for an acute appendix, and on opening the abdomen have found pathology with the foregoing organs, the appendix not being guilty. One case is especially recalled which was a small post-cecal-colonic abscess. The parts were exposed and the appendix found to be normal in appearance and not taking part in the pathological process. This as a symptom *per se* would, therefore, not lead us to the accurate diagnosis of an acute appendix in all cases, so we have to dismiss this as an absolute sign or symptom.

Nausea or vomiting is a common symptom of gastro-intestinal pathology; also of pelvic diseases.

In the majority of our cases of acute appendicitis where nausea or vomiting was a symptom, it took place after some nauseating remedy had been given for the abdominal pain. The period between onset of the disease and nausea or vomiting varied with the length of time elapsed after some remedy was administered; consequently we believe it is largely the remedy and not the disease that occasions the nausea or vomiting. So we dismiss nausea or vomiting for the above definite reasons.

Pain as a symptom *per se* in acute appendicitis would mean nothing. Pain or modification of pain is practically common to all pathology either directly or reflexly. Pain is the red light signal of danger, and thus the great preserver and savior of life. Were it not for pain or modification of pain, we would pass out without warning.

It is the study of pain as to the nature, location and radiation that leads us to the diagnosis of many pathological entities. *In about 60% to 70% of acute appendiceal conditions we have a very definite and characteristic pain. This aching or pain begins in the epigastric*

or umbilical region and gradually spreads over the entire abdomen in the course of two or three hours. Then, in about six to twelve hours from the onset, the pain settles or localizes in some definite portion of the abdomen,—usually in the lower right quadrant, in McBurney region.

The pain thus starting and localizing in our experience is pathognomonic of acute appendicitis in every case. It is so characteristic that you can make a diagnosis with such a history in 100%. You can diagnose such a case whether you see the patient or not. In fact, you can diagnose it over the phone or by radio.

The public is generally misled by interpreting this as "indigestion." This false interpretation on the part of the patient and family is the great factor that produces your mortality in acute appendicitis.

The public must be taught this one symptom of acute appendicitis. In learning this, 8,000 to 10,000 victims of this disease would be saved annually in the United States.

The place to teach this truth is in the public schools. Some months ago I was talking on this line to a school teacher in Norfolk, Virginia. I told her the characteristic symptom. A few months thereafter she told me that her room-mate was taken with this characteristic pain. She immediately sent for the family physician, and, on his arrival, at once diagnosed the condition as acute appendicitis. He had her operated on without delay and the surgical findings confirmed the diagnosis. Here in the school is where the knowledge must be disseminated, and you will get results by saving ignorant, suffering humanity.

CONCLUSIONS

1. The public should know this one diagnostic symptom, namely, that a great majority of cases begin by having a general abdominal pain and, in the course of six to eighteen hours, the pain and soreness become localized in lower right abdominal quadrant; or, better, in their own phraseology, begins by having "indigestion that caused pain all over the stomach, and in six to eighteen hours this pain or soreness settled in the lower right side of the stomach."

2. By learning this one symptom, each individual would not only save himself but also his friends, and thus would save at least 10,000 people annually.

3. This knowledge should not only be taught in our public schools, but by every means possible,—even broadcasted periodically by radio.

THE KAHN TEST AS AN AID IN DIAGNOSIS OF SYPHILIS.*

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Director of Laboratories, Jefferson Hospital.

The Kahn test was first reported in May, 1922, and largely perfected by Dr. Kahn, of Michigan. He, like many serologists, had felt the need for an easier, simpler reaction for syphilis than the Wassermann, with its many possibilities of error. In the Wassermann reaction, we use the cholesterinized antigen, which is recognized as being the most sensitive of the three antigens in general use. We do this to avoid false negative reactions.

The Kahn antigen is titrated with normal sodium chloride and to this is added the patient's inactivated serum. This is shaken for two minutes and observed for evidence of a precipitate.

The Kahn test is distinguished from other precipitation reactions by these salient features: First.—The serum is employed without dilution, Kahn having shown that diluting the serum with sodium chloride delays the rapidity of the reaction. Second.—The antigen is prepared so as to have a high antigenic titre. This is attained by using an alcoholic extract of dried heart muscle, previously extracted with ether, thus removing fat and other non-specific substances. Third.—The antigen is diluted with approximately the smallest amount of sodium chloride that will hold it in solution, rendering it thereby susceptible to precipitation when mixed with a positive serum. Fourth.—Antigen and serum are employed in that relationship which will result in a maximum degree of precipitation.

Litterer, of Nashville, in a paper read before the Tennessee Medical Association in April, 1923, reviews 1,000 cases with the following opinion: "Agreement with the Wassermann reaction was surprisingly accurate in view of the simplicity and economy of material and time, and the test should be used with advantage to check the Wassermann reaction, especially in doubtful cases." He does not feel that the test should supplant the Wassermann reaction, but that the two should be run con-

jointly to insure more accurate reports, and that it certainly deserves serious consideration on the part of serologists.

Keim and Wile, of Michigan, in the *Journal A. M. A.*, of Sept. 9, 1922, report 350 cases showing the following: First.—In primary syphilis there was an agreement of 66 2/3 per cent of the cases between the Wassermann and the Kahn, the remaining 33 1/3 per cent showing a distinct sensitiveness in favor of the Kahn reaction, as checked by clinical evidence and history. Second.—Secondary syphilis showed an agreement in 50 per cent of the cases, the balance being favorable for the Kahn as regards sensitiveness. One of these patients had just completed an extensive course of treatment with arsphenamine and showed a negative Wassermann but a positive Kahn. Third.—Of nineteen cases of tertiary syphilis, excluding cerebro-spinal, the Kahn was always positive in positive cases, though in the late cutaneous type, the Kahn in two cases only showed a plus two reaction while the Wassermann showed a plus four.

In cases affecting the osseous system, the authors report six cases—all of agreement.

In four cases of visceral syphilis, the Kahn consistently ran a plus four reaction, though the Wassermann showed one plus four reaction, two plus two reactions, and one plus one reaction.

In cerebro-spinal syphilis, in fifty-two cases, all of which were done with blood, the Kahn again compared very favorably. There was agreement in 45 per cent of the cases, the balance favoring the Kahn reaction.

In congenital syphilis the Kahn was slightly more sensitive than the Wassermann.

In latent syphilis the authors report eighty cases, 21 per cent of which gave spontaneous reactions in the Kahn test. In twenty-seven cases, which were passed as cured by two negative Wassermanns, the Kahn test gave a positive reaction without exception.

Keim, in the *American Journal of Syphilis*, of April, 1924, reports 1,000 cases in which the above facts and percentages were almost duplicated, and, in this report, he concludes that the Kahn reaction is even more sensitive and more highly specific than he had previously reported.

Young, the Director of Laboratories of Michigan Department of Health, in *Journal*

*Read before the Clinic of Jefferson Hospital, Roanoke, Va.

A. M. A., Nov. 11, 1922, reports the following interesting work:

"Before adopting this test routinely, 15,000 reactions were done in conjunction with the Wassermann. Though showing some variation from the Wassermann, these tests definitely proved that they were dealing with a method of serum diagnosis for syphilis possessing a high degree of sensitiveness and specificity."

They then report the first 5,000 done after official adoption of the test. There was an absolute agreement in 93 per cent of the cases, a relative agreement in 6 per cent, and an absolute disagreement in 1 per cent. Of this 1 per cent (fifty-one cases to be exact), all were in weakly positive sera, and all had a positive history and clinical evidence. Fourteen cases ran a positive Wassermann with a negative Kahn, while thirty-seven cases ran a positive Kahn with a negative Wassermann.

Holmes, of St. Louis, in the *Journal A. M. A.*, July 28, 1923, reports 1,000 cases, which showed a close correlation between the two tests with the balance in favor of the Kahn as regards sensitiveness, especially in treated cases.

Detwiler, of Toronto, in the *Journal A. M. A.*, Sept., 1923, reports 2,000 cases. Though feeling it was not the equal of the Wassermann reaction in their hands, he says the following: "In such cases (i.e. plus four Wassermans without history or symptoms), a confirmatory Kahn is of the greatest importance and we now perform the Wassermann and Kahn in parallel routinely in the Toronto General Hospital."

Kolmer and Yagle in the *Archives of Dermatology*, 1923, report the Kahn as being negative in the reaction for leprosy, in which disease the Wassermann is positive.

Of 1,975 negative sera, Kahn has just reported in the December issue of the *Archives of Dermatology* that all gave negative Kahn reactions except four. Of these four, two gave a plus one Kahn and two gave a plus two reaction. This speaks for itself, as regards its being a test of too great a degree of sensitivity.

In a personal communication from Dr. E. P. Corson-White, of Philadelphia, just received, she says they have gotten about 11 per cent higher positives in bone lesions of known syphilitic origin with the Kahn than with the Wassermann, though she says she has had

better results with the Wassermann in neurological cases.

In our own laboratory we have been doing the Kahn reaction routinely in conjunction with the Wassermann in over 2,000 cases, of which 1,800 were on separate patients.

We do not adhere to the original Kahn test, which calls for six times as much serum as antigen and depends upon large clumps in plus three and plus four reactions, but rather upon Kahn's own modification of his original test. In this modification, we use three tubes to each test, placing varying amounts of the antigen salt solution mixture in each tube. Thus, we have a serum-antigen dilution of three to one, six to one, and twelve to one, respectively. These are now shaken vigorously for two minutes, after which $\frac{1}{2}$ c.c. of normal sodium chloride is added to each tube. Negative sera give a clean-cut opalescent appearance, while in positive sera the addition of the sodium chloride seems to intensify the precipitate, which is readily seen without removing the tubes from the rack.

We do not thus rely upon the appearance of large clumps in plus three and plus four reactions, but rather on the rapidity as well as degree of precipitate formed. We have not infrequently found plus four sera giving a very heavy, though fine precipitate, as well as others giving large clumps.

Our reactions, then, are based upon the following: A distinct precipitate in a clear fluid in all three tubes indicates a plus four reaction. In partial positive reactions, the average of the three tubes is taken, thus a plus one, a plus two, and a plus three in each of the three respective tubes would give a final reading of a plus two reaction.

We have found this extremely valuable as an aid in diagnosis in early cases. One recent case will serve to demonstrate this fact, although we have had many others similar to the one mentioned. This case ran a negative Wassermann and a plus one Kahn in our laboratory. Upon investigation, the history showed that there had been an exposure, though no lesion had developed at the time this blood was taken. About three weeks later, we obtained another sample of blood which showed a plus two Wassermann and a plus three Kahn. Investigation showed that in the interim between the first and second tests the patient had developed a primary lesion.

Several cases having oral lesions have run negative Wassermanns and positive Kahns.

We have had similar experiences in bone cases, having positive clinical evidence of syphilis. Our largest percentage of negative Wassermanns and positive Kahns, however, has appeared in treated cases, where, in our experience, the Kahn reaction is invaluable.

Last, but not least from the standpoint of the serologist, is the fact that anti-complementary sera and hemolyzed sera need no longer be checked as unsatisfactory, since these changes do not materially affect the Kahn reaction.

The final word as to the value of the Kahn precipitation test must naturally come from the physician, and we have been particularly encouraged by the manner in which physicians from other states, as well as of our own staff, have received this extra service. Words of appreciation are not infrequently heard, and this appreciation expresses itself tangibly by the increase in the number of specimens reaching our laboratory.

SUMMARY AND CONCLUSIONS

Approximately 29,000 cases have been briefly reviewed in this paper in which the Kahn reaction was run in conjunction with the Wassermann. The opinions of various investigators, as well as our own in over 2,000 cases, have been a source of considerable satisfaction.

The need for a test possessing fewer sources of error than the Wassermann test has been felt throughout the country for sometime, together with the need for a test of high specificity.

The Kahn reaction seems to fulfill the above conditions. In the cases reviewed and in our own experience there were fewer false reactions and the Kahn has consistently appeared more delicate, especially in early cases, and in cases following treatment. Kahn has just reported a series of 2,600 reactions, 1,975 of which served as controls. All of the 1,975 gave negative Kahn reactions with the exception of four, and, of these four, two were plus one, and two were plus two reactions.

The standardization of the Wassermann test, although helpful, would not in our opinion solve the problem of serum diagnosis of syphilis because of the numerous variables that are inherent in the test.

We believe to check each Wassermann with

this relatively simple test is at present the best solution of the problem.

We do not say, nor claim, it to be the final solution, because we are dealing with tests of which very little is known regarding the biology as well as the physical chemistry. We do believe, however, to run the Kahn routinely in conjunction with the Wassermann reporting both reactions to the physician, gives the physician a far more dependable laboratory diagnosis than the Wassermann alone could possibly give. We sincerely hope the physicians will continue to give this test their worthy support, as they have since learning the value of this reaction.

A CASE OF ABSCESS OF A SUPERNUMERARY MAMMARY GLAND.*

By W. AMBROSE McGEE, M. D., Richmond, Va.
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The case here reported is unusual and interesting in that an abscess developed in a supernumerary mammary gland.

REPORT OF CASE

Mrs. A. P. C., white, age thirty-eight, entered St. Elizabeth's Hospital on January 18, 1925, complaining of a tumor of the left breast. Since birth there had been a small supernumerary mammary gland underneath the normal left breast. The gland had always functioned normally, enlarging during gestation, and lactating after delivery. It had never caused any trouble until recently. In November, 1924, the patient noticed that the accessory gland became enlarged, slightly painful, red, and somewhat hard. She attributed this to a blow a day or two previously. No apparent change was noticed in this painful, red and swollen extra breast until the following January 17th, when she noticed that about four ounces of a fluid resembling blood and milk was discharged from the nipple. At no time had the patient had any fever or constitutional symptoms. The next day she entered the hospital. She was nursing a two year old child and all three mammary glands were lactating, but the extra one had never been used as a source of infant feeding.

The family history showed one sister who had a similar congenital anomaly and a maternal cousin who gave birth to twins. The patient's past history was irrelevant with the exception of four miscarriages. Neither of her

*Read before Staff Meeting of St. Elizabeth's Hospital, Richmond, Va., February 26, 1925.

two children were known to have any congenital anomalies.

Physical examination revealed the following positive findings: A slightly emaciated woman with moist sallow skin; reddened gums that showed evidence of pyorrhea; a soft systolic murmur over the mitral area transmitted to the axilla; and a supernumerary mammary gland five by one inches (13x2.5 c.m.) located one and one-half inches (3.8 c.m.) below the left breast in the milk line. The gland was



Fig. I.—Supernumerary Mammary Gland Below Normal. Left Breast.

freely movable and had a normal looking nipple from which a milky substance could be expressed. Beneath the accessory nipple was a fluctuating mass which was red and indurated, giving the appearance of an inflammation and not a neoplastic condition. Both normal mammary glands as well as the extra one were lactating.

Urinalysis, blood smears and counts, and a two-hour phenolsulphonephthalein kidney function test were normal. The blood Wassermann reaction was negative.

A tentative diagnosis of abscess of a supernumerary mammary gland was made, in spite of the normal blood count and the possibility of an atypical neoplasm.

The accessory breast with its fluctuating mass was excised on January 19, 1925, by Dr. J. Shelton Horsley, and the gross specimen re-

vealed a supernumerary mammary gland filled in its center with pus and necrotic material, indicative of a pyogenic abscess. Immediate fresh frozen section confirmed the gross diagnosis and showed no evidence of malignancy. There was considerable hyperplasia of the epithelial glands with marked infiltration of round cells, and near the surface of the wall of the growth the tissue was edematous and contained many polymorphonuclear leukocytes. Though



Fig. II.—External View of Gross Specimen Removed at Operation. Two-thirds actual size.

not cancerous, the abnormal structure would have undoubtedly been a continuous site for irritation and an excellent focus for the later development of a cancerous growth. The wound healed by first intention, and on January 28, 1925, the patient was discharged from the hospital well. She reported on February 19, 1925, that she was entirely complaint-free.

DISCUSSION

Polymastia, while not a rare condition, is not common, particularly when a typical mammary gland is seen. It is usual to find the extra gland or glands in the so-called milk line, but accessory breasts are found in the axilla, the groins, or in any part of the body. The condition occurs in both sexes, but more frequently in females. Darwin's theory that polymastia is a reversenary or atavistic phenomenon is the accepted theory of causation. Statistics seem to point to heredity as a factor in polymastia. There is some evidence that polymastic and polythelic women are abnormally fecund with a tendency to twins. When the accessory mammary glands are located in a portion subjected to trauma, as on the buttocks, the glands become painful during gestation and lactation. In some instances, the supply of milk is suffi-

cient to nourish an infant, there being cases on record where a mother was able to nourish two children at the same time, one normally while the other was fed by means of the supernumerary mammary gland. One danger of these accessory breasts is that they are seats of a possible malignant growth due to the constant source of irritation.

The following are five reasons why polymastia may require surgical intervention:

1. To alleviate excessive pain during pregnancy and lactation when the glands are situated in areas easily irritated.

2. To remove the constant ectopic dripping of milk.

3. For cosmetic effects.

4. To remove a possible area in which malignancy may later develop, which constitutes the same indications for surgery as similar conditions in the normally placed breast.

5. To relieve acute or chronic inflammatory processes such as abscesses, chronic mastitis, etc.

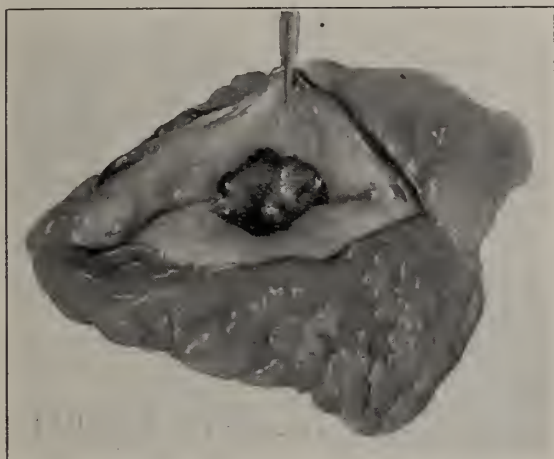


Fig. III.—Internal View of Gross Specimen Removed at Operation. Two-thirds actual size.

Supernumerary breasts are often mistaken for an abscess during gestation and lactation and are lanced, much to the dismay of the operator. When surgical intervention is necessary, the gland should best be excised during pregnancy or lactation, for if this time is not chosen, the surgeon will be surprised to find only a small gland about the size of a pea after lactation.

While no doubt abscesses of supernumerary glands do occasionally occur, no mention of such cases has been made in the recent literature. In the case under discussion, a definite

diagnosis could not be made prior to operation, but even though such was the case it would have been better to excise the mass rather than lance it on account of the possibility of spreading either infection or malignancy. This case indirectly supports the idea of heredity as causation, and illustrates the possibility of abnormal fecundity with a tendency to twins.

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PSYCHOSES IN TWINS.*

By ALFRED GORDON, M. D., Philadelphia, Penn.

The resemblance of twins in some cases may not be more striking than the resemblance which is ordinarily encountered in brothers and sisters of the same family. In other cases the resemblance may be total and seen not only in the physical organization but also from the standpoint of intellect, expression, attitude, character, behavior, general health, and even diseases which might develop in the course of the twins' lives. We will be concerned here exclusively with mental affections occurring in twins. A review of the literature shows that there are cases in which the diseases of one commence immediately or soon after the disease of the first; cases in which the disease of one appears much later than that of the other; cases in which one becomes affected after the other has totally recovered; cases in which the possibility of an induced or influenced psychosis or *folie a deux* could be considered when the twins live together. There are also cases in which a psychosis develops almost contemporaneously and runs about an identical course in character and duration and terminates in a similar manner. On the other hand, twins after reaching an adult age may become separated, yet develop at different times similar affections. The latter two possibilities are presented here by two pairs of twins who have been observed by the writer during a long

*Read at the November meeting of the Philadelphia Psychiatric Society.

period of time. Before discussing the pathogenesis of the twins' psychoses, the histories of their cases will be reported.

Case I. Twins R. and M., brothers, twenty-one years of age. They come from a family in which several members were affected with psychic disorders: the father was alcoholic and went through several attacks of delirium tremens. One uncle had periods of depression. The latter's wife had epileptic seizures. Both brothers received an identical education, had the same tutors; they were constantly in each other's company and were tenderly fond of each other. Their dispositions, however, showed a certain difference: R. was very excitable and irritable. M., on the contrary, had a quieter disposition, he could not be easily aroused. In spite of their unusual mutual attachment, they frequently displayed discontentment with each other's behavior. R. would at times become very moody and then attempt to attack M. The latter never resented seriously his brother's attitude; on the contrary, he would endeavor to pacify him and at no time carried a grudge against him. R. would attack, assault, use profane language, but when M. would meet with an insignificant accident, he would become much agitated, could not sleep and paid unusual attention to his brother's welfare. Both spent considerable time together, would go to the same games, confide to each other incidents of all sorts which either happened to observe. Both showed almost equal abilities intellectually, but physically R. was the stronger and could manipulate objects more skilfully than M. At seventeen both entered as clerks in a banking house. For two years they kept their positions and were considered orderly and correct employees. At nineteen, R. commenced to show signs of psychotic disorder. Instead of regular attendance at the bank, he would be frequently late, and when reproached he would become violently angry and attempt to attack. Soon he was found to go out at night, return to the house and go out again repeatedly. He could not sleep, became restless. At other times he would remain in his room for many hours and refuse food. His room was neglected, as he would not allow anyone to keep it clean. He would not bathe or change his clothes. For many hours and on two occasions he disappeared from home and upon returning could not give an account of himself. He became disinterested in every

one about him. He would not speak to M. or to his parents. He showed at times frank hostility towards his brother. The condition remained unaltered during a period of three months. Hypochondrical delusions made their appearance. Often he expressed enmity because his people "deprived him of his sexual organs." His brother, he said rendered them atrophied. On one occasion he seized a knife with the object of castrating himself. He struggled violently when his parents tried to prevent him from doing it. He kept on dwelling considerably on his infirmity. Hallucinations, chiefly auditory, made their appearance: in them his brother figured chiefly: he accused him of conspiring with neighbors against him, as he "heard his voice frequently over the telephone speaking on this subject." Gradually he became disoriented in space and time, ceased to bring back to memory events of the most familiar character even when repeatedly reminded of them. He was unable to give names correctly. He imagined that he was living in a stable. Often he would make peculiar sounds and imitate different animals. Soon a change took place. He became extremely helpless. He was quiet, allowed everybody to handle him. He would not talk voluntarily, but when questioned, his replies were incoherent and unintelligible. His attendant found him frequently masturbating.

The psychotic history of M. presents much similarity in many respects. During his brother's illness on several occasion he became agitated. At times he was unusually depressed. Either condition lasted but a few hours. In the intervals he showed considerable concern about his brother. He offered his services as an attendant to him. His insistence was so strong that the parents permitted him to take care of R. while the nurse was off duty. Special attention and emphasis is laid by the parents on this fact that after spending two hours at his brother's bedside M. would be in bad spirits, namely, very irritable and unapproachable and would not partake of the next meal. Gradually more profound changes took place. Depression, disinterestedness, apathy, indolence were the striking features. He no more inquired or expressed a wish to see his brother. On one occasion his mother fell accidentally and sprained her ankle which caused her considerable pain. M., who formerly was very tender towards his parents, no more paid

attention to his mother's suffering. This condition lasted six weeks when he commenced to show some improvement. Soon, however, another set of symptoms developed. He became delusional; he showed continuous fear of being attacked. Hearing noises from his brother's room, he conceived that the brother was chiefly the one who was going to injure him, although he also feared his parents. One night he eluded his attendant who fell asleep and he was found with a knife in his hand at his brother's door. His dislike to his brother became intense. Hallucinations were present; he was frequently seen staring at the ceiling and conversing as if someone was replying to him. Soon he returned to his original condition. He again became listless and indifferent. He would not leave his bed and refused food. He could not fully understand when spoken to. Only occasionally would he reply to questions, and then he did it in an irrelevant manner.

The condition of the two brothers remained unaltered for eight months, when a slight improvement commenced to make its appearance. Gradually they began to observe and interpret what was happening around them. The progressive improvement was exceedingly slow, but when it became quite evident, they were sent to a relative in the country. When their physical health permitted, they were made to do some work on the farm. The present condition is such that their mental affection can be considered only as improved, but by no means is there a recovery. They become very easily exhausted. R. is at times found agitated and M. depressed. Both are seen sometimes with a staring expression of the face. Their reasoning is at times paradoxical. Both are yet disinterested in the surroundings, although in a different degree. Both respond to stimulation equally poorly, although in a different way. Their present condition could be considered but a remission in the course of dementia praecox with which they probably have been afflicted.

To sum up, we have here an example of an identical mental affection in twins, in one of which it developed soon after the other's, ran a similar course and ended in a similar manner. The character of the disease precludes the possibility of an influenced psychosis or *folie à deux*.

Case II. L. and H., sisters, came under my observation at the age of twenty-five. The history obtained from the parents relates that

up to the age of eighteen, they lived together with their parents. During all those years they were devoted to each other; they would share all amusements and enjoyments. While their physical resemblance was striking, nevertheless they differed somewhat in temperament and intelligence. L. was of a serious make-up; she associated with children of older age, had more poise, liked to discuss more difficult subjects, read more serious literature and was inclined to view everything from a more serious angle than her sister. It was observed that at the age of ten and fourteen she had several short periods of mental depression. H. had a livelier disposition, was rather superficial in her judgment, always inclined to take matters in a lighter vein than her sister. Any unpleasant incident or an unfortunate occurrence was not considered important by her, and she would soon forget it, but her sister would invariably dwell on it, worry over it to the point of losing sleep for many days. Up to the age of eighteen no special incident occurred to disturb their peaceful life. Their parents were indulgent and endeavored to satisfy all their wishes. At that age their father met with great financial reverses. He lost all he possessed. He then had an apoplectic attack and died. The mother being unable to support herself and the children, sent L. to a married sister and H. to her married brother. The pathological histories of the twins date from that time.

L. had a difficult life at her aunt's home. She was forced to do heavy work, was frequently criticized and reproached. On many occasions she was neglected for the benefit of her two girl cousins. She was often humiliated in the presence of strangers. L. worried intensely over the situation, but was compelled to remain in that home, her mother having died after a surgical operation. She developed insomnia. She was heard frequently walking in her room. On one occasion when her uncle returned home very late in the night he found her sitting on the floor in the dining room, crying bitterly and saying she wished to die. She would spend her days in her room, groaning and moaning, complaining about an incurable disease, which affected her heart and that therefore she could not live. She apparently had visual hallucinations, as she was seen out-stretching her hands into the space and speaking as if in reply to questions.

She soon attempted suicide, but unsuccessfully; she cut into her wrist; the blood frightened her and she fell on the floor. The noise of the fall was heard and she was promptly helped. The family objecting to a commitment because of a possible stigma on the two daughters, kept L. at home and placed her under medical care. At the end of the sixth week, L. commenced to show signs of improvement. She eventually recovered. Her subsequent history during a period of two years shows a series of attacks of mild depression of about two or three weeks' duration each.

The subsequent social history of H. was fundamentally different. At her uncle's house her life was somewhat more agreeable than her sister's. Being of a happier disposition and more adaptable she encountered no special difficulties. Because of her characteristics she did not attach much importance to many unpleasant moments which she suffered at her aunt's hands. At times she would give some thought to the situation, but she mostly succeeded in overcoming the disagreeable effect of it. However, she felt that she was getting irritable and discontented. If occasionally her relatives would show her some special attention and favors, for days she was exalted, unusually happy, would whistle and sing in her room. Soon she made the acquaintance of a young man; they became intimate and got married. Her married life at first was not a happy one. The husband was alcoholic and treated her brutally. Being very fond of him she overlooked his behavior and continued taking care of him, although not infrequently she was found in tears. During the fifth month of pregnancy the husband observed that she would meet him each afternoon upon his return with an extraordinary exhibition of delight, notwithstanding the fact that she complained of his treatment and that to her own acknowledgment her marriage was a total failure. Soon this exaltation extended to longer periods. She could not remain at home. She was seen going and coming many times during the day. To whomever she happened to meet she appeared unusually happy, spoke in extravagant terms of the purchases she was making, of the personal characteristics of her husband, of the unusual friendship of her neighbors, of her personal happiness, of her possible future wealth. She ate voraciously day and night. She slept but three or four hours. This maniacal condi-

tion with fluctuations lasted four weeks, after which abortion took place. The abortion was accompanied by abundant hemorrhage and followed by prolonged convalescence. While convalescing she became depressed, showed very little interest in surroundings, and gave very little thought to the interruption of her pregnancy. This depressive phase lasted three weeks. She was then sent to her husband's relatives in the country. After an interval of two weeks she again became depressed. At that time, after a careless exposure to cold, she contracted pneumonia and died.

To sum up, we are here in the presence of a manic-depressive psychosis in twin sisters, who became mentally ill only after they became separated and lived a different life. The question of *folie a deux* can be answered in a negative sense in view of the fact that the patients lived apart for a considerable time.

In analyzing the two examples presented here, one is bound to be impressed by the fact that the members of each group of twins suffered respectively from a similar affection, and the resemblance usually encountered in twins was not only of a morphological character but also manifested itself in morbid psychological states. Otherwise speaking, there was a physiological and pathological parallelism expressed in a high degree. That various members of one family may develop psychotic disturbances at any time in their lives and each of a different character is not surprising because of an inherent tendency to mental affections. But when the disorder is of an identical character in two individuals born at the same time and strikingly resembling each other physically, in such cases the acceptance of the principle of inheritance in a general way appears to be insufficient. A striking example of the order related here is described by E. Mickle (*Jour. of Mental Science*, April, 1884, p. 67). Melancholia developed in two twin sisters, who presented an extraordinary physical and moral resemblance. In both the delusion was identical and of a religious character, both had visual hallucinations of the same character: both expressed the same terror which tortured them to the same extent, and both used identical language in expressing it; both attempted suicide in an identical manner. But what is interesting from our standpoint is that the same mental affection with its special features identical in the state of anxiety, in expression

and in the degree of suffering, developed in one sister at the age of twenty-nine and in the other at forty-one. C. Gill (*Jour. of Mental Science*, January, 1883, p. 539) reports the history of two twin sisters, twenty years of age, who presented the greatest resemblance from physical and moral standpoints. They became afflicted with the same mental affection and almost at the same date. One of the sisters had maniacal outbreaks with predominant erotic delusions, the other with religious delusions. In both the psychosis was intermittent. The interesting feature about this case is the following point: On one occasion one of the twins happened to live in Scarborough, the other in York. The latter suffered from an attack of migraine with gastric disturbances. It was found that the other sister had identical attacks, being in a town remote from the other town where her sister lived.

These two cases, as well as many others reported in the literature, also the two groups of cases described in the foregoing pages, may suggest the idea of so-called twins' psychoses. But if we bear in mind the fact that a great variety of mental disorders have been observed in twins, such as amentia, depression with persecutory ideas, mania, melancholia, hallucinatory states, paranoia, dementia praecox, paresis—all conditions that are observed in others than twins—if we also consider the fact that the course, duration, termination, and etiological incidents present nothing specific but are identical with the same factors in all psychotic individuals, one cannot admit the conception of a psychosis as specially characteristic of twins, notwithstanding the fact that some German authors, under the term *Zwillingsirresein*, and some French authors, under the term *folie gemellaire*, admit the existence of such special psychosis. What particularly suggested the idea of a special twins' psychoses to those writers is the simultaneous occurrence and development of psychotic disturbances in twins who live apart so that there could not be a question of induced mental manifestations. In spite of the similarity of the clinical pictures of a psychosis in twins, one must bear in mind the conditions and circumstances in which the individuals live and which could commence a psychosis in any other individual, provided there is a morbid heredity. Similarity in the course of a well known mental affection does not render it specific. However, the inference

that can be drawn from an occurrence of the same affection in twins living apart is the following proposition: if the predisposition to mental disorders in many instances presupposes a congenital morbid organization of the nervous system, the role of heredity finds its strongest corroboration in cases of psychoses in twins. All such cases point most emphatically to the fact that similar physical organizations of the nervous system may lead to similar pathological disorders. Furthermore, the occurrence of a deep parallelism in morphological and pathological elements in twins, in the cerebral organization and its physiological functioning, speaks strongly in favor of single ovum twins, especially when both are of the same sex. We are dealing here either with an intrinsically abnormal ovum or with a normal ovum fertilized by an abnormal spermatozoon by division. Conceived by absolutely identical elements and in absolutely identical conditions, undergoing absolutely identical influences during the entire period of gestation, twins are one degree more closely related, so to speak, to each other than brothers and sisters. There is undoubtedly a greater physical and intellectual affinity than in other members of the same family, which surpasses the ordinary limits of consanguinity. The entire problem here is one of heredity and that psychic disorders in twins is but the most striking and most illustrative evidence of the existence of this great force which controls all organized beings. In the case of twins who show developmental disorders, we are dealing, of course, with a morbid hereditary force. It seems that at least in a certain group of cases the fact of double conception is an inferior mode of procreation determined by the usual factors of degeneracy. Some obstetricians are quite firm on this subject. Bar considers it as a paternal or maternal morbid strain in animals as well as in man. It is frequent in syphilis, and in a large percentage of twins who died, luetic livers were found. Keim emphasizes hereditary tuberculosis as an etiological factor. Porak and Schatz believe that double gestation could be considered as parallel with a double monstrosity. Fournier was of the same opinion. As a syphilologist, he had great opportunities to observe and record double births in hereditary syphilis. Hutchinson held the same view. (*Bull. de Academie de Medicine*, 22-30, October, 1900).

To sum up, we may say psychoses in twins develop frequently on the basis of degenerative etiological factors, and the similarity or identity of the mental disorder finds its *raison d'être* in a consanguinity which surpasses the ordinary limits.

1812 Spruce Street.

Correspondence

Chiropractic and Poropathy.

TO THE EDITOR:

In the last session of the Legislature a bill was introduced looking to the licensing of chiropractors. Though it failed of passage, it had very considerable support. Senate Bill No. 55, which passed in the session of 1918, gave to Arthur de Collard a right to practice "poropathy" without any examination or inquiry into his scientific attainments by the State Board of Medical Examiners. This bill was earnestly opposed by representatives of the regular medical profession, but without effect. de Collard claimed to be a Corsican and a cousin of Napoleon. Undoubtedly he is foreign. He said that he graduated at several European universities but that all of his diplomas have been burned! He would not answer the simplest question on the elements of medicine and surgery, as he said the doctors were jealous of him. His attitude could be readily and justly estimated by any man of common sense, and yet a foreigner of this type was taken up and special measures exempting him from the State Board of Medical Examiners passed the Legislature by an overwhelming majority. I understand that several "poropaths" who have taken the course under de Collard now desire to be licensed to practice medicine in Virginia.

There are approximately 2,500 members of the regular medical profession in Virginia. There are probably not 300 irregular practitioners, including all of the cults. Yet when a bill to license de Collard to establish a school of "poropathy" was introduced it passed overwhelmingly. The bill to license chiropractors only failed by a small margin. Does it not seem absurd for the medical profession in Virginia, to whom the people have a right to look for the protection of their health, to be content with this state of affairs?

In view of the probable introduction of a bill for chiropractors at the next Legislature,

and of the presence of men who have been trained under de Collard and who desire license to practice "poropathy," it may be of interest to reproduce the bill by which de Collard was permitted to establish his "school." If it were not for the seriousness of this piece of legislation in lowering the scientific standards of the practice of medicine in the State of Virginia and thereby jeopardizing the health of the people, the whole affair would appear ridiculous.

The bill and the record of its passage follow:

SENATE BILL No. 55.

Patron, Mr. Wendenberg, by request.

"A Bill to define and regulate the practice of Poropathy and Manipulative Surgery, to provide license of practitioners thereof, and to provide for a penalty for the violation of this Act, and for other purposes.

"1. Be it enacted by the General Assembly of Virginia: That the system and practice of Poropathy and Manipulative Surgery is hereby defined to be a new branch of therapeutics and is the use and employment of medical manipulation and absorption through the pores of the skin and the mucous membrane without medicine taken through the stomach or the use of the knife, and the use and employment of healing and curative agencies and lotions, applied directly to the diseased organs and to the nerves controlling these organs, through the pores of the skin and mucous membrane, which are opened by medical manipulation, and which immediately reach the disease or ailment through the eliminating organs of the human body, and by this process, heal and cure the following diseases and ailments: Neurasthenia or nervous prostration, internal cancers, stomach or otherwise, tumors, internal and otherwise, kidneys, liver, uterine, ovaries and all obscure ailments, adipose tissue, rheumatism, locomotor ataxia, cerebrospinal meningitis, St. Vitus dance, epilepsy, paralysis, tuberculosis of the joints, heart trouble, fatty degeneration, and valvular weakness; and also adjust, heal and cure broken bones, sprains, dislocations, displacements of muscles and joints, slipping of cartilages of knees or other joints, spinal injuries, breakages or displacements of small bones of legs and feet, and supplementary system and science of Physical Culture, by which every muscle of the human body is reached, developed and strengthened

without the aid of any apparatus; which treatment and Medical Manipulation consist of Poropathy, Manipulative Surgery, Massage, Physical Culture, Dieting, Herb-lotions and Salves, also including the treatment and cure of diseases or ailments through the pores of the skin and the mucous membrane of the human body as above mentioned and specified.

"2. That any person who shall apply to, and present and submit to a commissioner of the revenue in any City or County of this State, who is authorized to issue licenses, a certificate in writing, sustained by affidavit or affidavits showing that he is of good character and that he is versed in the practice of Poropathy and Manipulative Surgery, shall receive from the said officer a license issued by him, which shall entitle the holder thereof to practice Poropathy and Manipulative Surgery, and as above defined, in this State for a period of twelve (12) months from the date of such a license, for which the holder thereof shall pay to the treasurer of said City or County, a license-tax of *ten dollars* (\$10.00) per annum.

"3. That any violation of the provision of this act shall be a misdemeanor, and shall be punished by a fine, not less than *fifty dollars* (\$50.00) nor more than *one hundred dollars* (\$100.00) or by imprisonment of not less than thirty (30) days, nor more than six (6) months in jail, or by both fine and imprisonment.

"4. That nothing in this act shall be construed to apply to duly authorized physicians, to persons authorized to practice Optometry, Osteopathy, or Chiropractic, under the laws of the State of Virginia, nor any other practitioner of any medical science, permitted and licensed under the laws of the State of Virginia.

"5. In order that this act may be given effect as soon as practicable, an emergency is declared to exist, and this act shall be in force from its passage."

The Journal of the Senate, March 2, 1918, shows that the foregoing bill came up upon its second reading on that date with the Committee Substitute and Amendments to Substitute. The Committee Substitute was as follows:

"An Act for the relief of Arthur de Collard and to authorize him to practice Poropathy, Massage and Manipulative Surgery in the State of Virginia.

"Whereas, Arthur de Collard has been engaged in the practice of Poropathy and Manipulative

Surgery in the State of Virginia for three years or more; and

"Whereas, it appears that a large number of respectable citizens of this State have been treated by the said Arthur de Collard and greatly benefited thereby and desire that the said Arthur de Collard be allowed to continue the practice of Poropathy and Manipulative Surgery in the State of Virginia.

"1. Therefore be it enacted by the General Assembly of Virginia, that Arthur de Collard be, and he is hereby, authorized to practice Poropathy, Massage and Manipulative Surgery in the State of Virginia.

"2. In order that this act may be given effect as soon as practicable, an emergency is declared to exist, and this act shall be in force from its passage."

The Committee Amendment to the substitute, proposed by Senator Conrad, was as follows:

"Committee Amendment to Substitute for Senate Bill No. 55.

"Sec. 1, line 3, at end of line strike out a 'period' and insert a 'comma' and add the following: 'Provided that the said de Collard shall first apply for and successfully stand an examination on anatomy and Materia Medica before the State Board of Medical Examiners.'"

Dr. Gravatt proposed an amendment to the Committee Amendment next quoted above, as follows:

"After the words 'Materia Medica,' insert 'therapeutics, diagnosis, pathology.'"

Dr. Gravatt's amendment was rejected. Mr. Trinkle offered the following amendments:

"Striking out all of the language of Sec. 1 following the word 'lotions' in line 8.

"2. In Sec. 2, strike out the words 'for which the holder thereof shall pay to the treasurer of said city or said county a license-tax of Ten Dollars (\$10.00) per annum.'"

These amendments were agreed to.

Senator Strode offered an amendment as follows:

"After the word 'license' in Sec. 2, line 10, insert 'provided that no person licensed under this act shall use or advertise himself as having the title of Doctor.'"

This amendment was also agreed to. The Committee Amendment to the Substitute was rejected and the Committee Substitute was rejected. Whereupon Mr. Trinkle moved to

dispense with the reading of the bill as required by Sec. 60 of the Constitution, which was agreed to. Ayes 18; Noes 4, Mr. Trinkle voting in the affirmative.

The original bill carried an emergency clause, which required a four-fifths vote for its passage. The question then recurring on the passage of the bill, the bill was rejected for failure to receive the four-fifths vote required. Ayes 17, Noes 7, Mr. Trinkle voting in the affirmative, Dr. Gravatt and Dr. Henning being recorded in the negative.

Mr. Mapp moved to reconsider the vote by which the bill was rejected, which was agreed to. Mr. Trinkle then offered an amendment striking out the emergency clause, Section 5 of the bill, which was agreed to. The effect of this amendment was to require only a majority vote for the passage instead of the constitutional four-fifths. The bill was then passed. Ayes 16, Noes 6, Mr. Trinkle being recorded in the affirmative, Doctors Gravatt and Henning in the negative.

Mr. Trinkle moved to reconsider the vote by which the bill was passed, which was rejected. *Journal of the Senate, 1918, p. 565.*

Surely a perusal of this bill and the proceedings of the Senate should furnish all the stimulus that any doctor in Virginia would need to see that the members of the legislature and the candidates for governor have a clean record and a platform that upholds the standards of scientific medicine and surgery, and at least affords the same protection for the health of the people of Virginia that is given to cattle and hogs.

J. SHELTON HORSLEY.

Richmond, Va.

New and Approved Method of Vaccination.

TO THE EDITOR:

We recommend the following method of vaccination as being the simplest and safest. This is based upon investigations by the United States Public Health Service.

The best site is the outer side of the arm about one-half way from the elbow to the shoulder. The skin should be washed in alcohol, ether or soap and water and wiped dry or allowed to dry. A drop of virus should be placed on the site chosen. The arm is held horizontal with the skin made taut by the left hand, and a sterile needle is held in the right

hand with the forefinger and the middle finger above the needle, the thumb below the needle pointing to the operator's left. The side of the needle point is then rapidly but firmly pressed into the drop twenty to thirty times, all within an area of one-eighth inch, the needle being raised clear of the skin after each pressure. The needle should be held parallel to the skin, and the motion should be perpendicular to the skin and the needle, not in the direction of the needle. In this way, if the skin has been held taut, the elasticity of the skin will pull a fraction of an inch of the scarf-skin over the point of the needle at each pressure, so that the virus is carried into the layers of cells where multiplication takes place most easily. No signs of bleeding will occur and all evidence will fade out in twelve hours. Immediately after the pressures have been made, the remaining virus is wiped off the skin with a sterile gauze and the sleeve pulled down.

It is best to apply no dressing but to keep the site clean and dry. Vaccination shields are dangerous. Felt bunion pads are very dangerous. Large areas of vaccination are also dangerous. If the vaccination takes, great care should be used to keep it dry. Avoid getting it wet when bathing.

The above method is found by experience to be more efficient than scratching and there is less danger of infection.

ENNION G. WILLIAMS,

State Health Commissioner.

Richmond, Va.

The above is copy of a circular letter recently sent by the State Board of Health to all the doctors in Virginia. We publish it because of its great interest at this time.

Do Your Part in Times of Peace as Well as War.

TO THE MEMBERS OF THE MEDICAL SOCIETY OF VIRGINIA:

In a recent communication from the Surgeon-General of the Army, attention is called to the necessity for obtaining the co-operation of the medical profession of Virginia in the physical examination of candidates for the C. M. T. camps which will be held during the coming Summer.

It is essential that all the young men admitted to these camps be physically fit and

whether they are or not can be determined only by a physical examination which is performed before they leave home, preferably by their own physicians. It is also important that all candidates for training be immunized to typhoid and paratyphoid fevers and small-pox in order to obviate all danger of epidemics in the camp and to afford protection against these diseases in the event of a national emergency. It is desirable, and indeed necessary, that candidates for enrollment be examined and immunized without cost to the applicant. Arrangements have been made whereby this may be done at any Army, Navy or Public Health Service Station where medical officers are on duty, but it is impracticable to reach all applicants through these agencies.

I am sure that it will be the patriotic duty of all the members of the Medical Society of Virginia to assist in the operation of the C. M. T. camps during peace, as part of their share in the defense of our country, by physically examining and immunizing, without charge, such candidates for training, living in their communities, as may apply to them. For this reason I am writing to ask that each member of the State Society will co-operate with the Federal Government in this matter in so far as may be consistent with his other activities.

May 3, 1925.

HUNTER H. MCGUIRE,
President.

Analyses, Selections, Etc.

The Transplantation of Distant Skin Flaps for the Cure of Intractable Basal Cell Carcinoma.

In a paper on the above subject read before the American Surgical Association, Washington, D. C., May 5, 1925, by J. Shelton Horsley, M. D., Richmond, Va., the author discussed the pathology of basal cell cancer. There is marked variation in the morphology and structure of certain types of basal cell cancer, from the common small spindle or filament-like cells in closely packed masses to columnar cells arranged as acini. It is suggested that the cause of this variation is that basal cell cancer, being derived from the deep layers of the epidermis, is more closely akin to the hair follicles and sweat and sebaceous glands, which also arise

from the deep layers of the epidermis, than spinous cell cancer which begins in the superficial layers. Therefore, reversion to gland structure would be more likely to occur in basal cell cancer than in spinous cell cancer.

The rarity of metastases of basal cell cancer is noted. Spinous cell cancer, especially in the more malignant forms, metastasizes readily in the lymph nodes, but basal cell cancer seems to require for its progress a breaking down of the resistance of the adjacent normal tissue, probably by some substances elaborated during its growth. As basal cell cancer occupies areas that are frequently attacked by spinous cell cancer, the cells of a basal cell tumor doubtless have access to the same lymphatics and blood vessels as would the cells of a spinous cell tumor. It is reasonable to assume that these basal cells are transported, but they do not survive because the resistance in the distant tissue inhibits their growth. It seems logical, then, to transplant distant tissue to cover the raw surface left by excision of an intractable basal cell cancer with the expectation that such a flap will tend to prevent recurrence.

Ten cases of intractable basal cell cancer, treated according to the principle of transplanting distant flaps over the area left after the cancer had been excised, are reported. There was recurrence in five of these ten cases, but in no instance was the recurrence in, or in immediate proximity to, the transplanted distant flap. In all of the recurrent cases the cancer was excised and there has been no further recurrence in three cases, while in two where it was difficult to adjust the transplanted flap to the wound the cancer continued. On the contrary, in a patient in whom a distant flap was transplanted in order to cover the raw surface after excision of an extensive spinous cell cancer a recurrence appeared under the flap and quickly invaded the flap. In most basal cell cancers in early stages simple methods of excision with a knife, cautery or paste, or treatment by roentgen-ray or radium, are usually effective, but in a few instances these measures do not avail. It is in these intractable cases that a thorough excision, preferably with the electric cautery, and transplantation of a flap from a distance afford an opportunity for cure after other methods have failed. The principle of the operation is based upon the peculiar pathology of basal cell cancer in that it does not metastasize.

Yeast in the Treatment of Pellagra and Black Tongue.

Joseph Goldberger, G. A. Wheeler, W. F. Tanner, Surgeons, U. S. Public Health Service, in Public Health Reports of May 8, 1925, tell of a recent communication in which there were reported the results of a study of the action of dried brewers' yeast as a therapeutic and preventive agent in pellagra. Evidence was submitted that was interpreted as indicating conclusively that this yeast supplied an essential or the essential preventive factor or factors. Although both therapeutic and preventive tests were made, emphasis was placed on the preventive action, since the preventive test was considered much more significant of the value of the preparation.

As was stated in that communication, 26 patients in all were taken under treatment between May 26, 1923, and May 10, 1924. A number of additional cases have been treated since that time. The majority have been mild recurrent attacks. With one exception, all made prompt recoveries from the immediate attack. The exception was a case in a recently admitted patient with symptoms of central neuritis who died within 72 hours after coming under observation and beginning treatment.

Since the publication of the above-mentioned report, the writers have had inquiries relative to certain details of the treatment with yeast which, so far as possible, they answer in the following way:

Our work with yeast has been done almost altogether with a commercial preparation of *dried* brewers' yeast. It is not improbable that pure *dried* bakers' yeast will prove to be approximately equally efficient.

At the outset of the study the therapeutic dose was arbitrarily fixed at 1 gram per kilo of body weight for patients with marked active symptoms. As our experience has grown, we have come increasingly to believe that a considerably smaller dose will suffice, particularly when combined (and so far as possible it should be) with the now well-known dietary treatment. In the cases more recently treated the daily dose has been between 15 and 30 grams (one-half to 1 ounce) or, roughly, 2 level teaspoonfuls three to six times a day.

We were led to test the action of yeast in pellagra by reason of some very favorable indications afforded by tests of this preparation

in experimental black tongue in dogs. We would now state that in the treatment of this experimentally induced disease a dose of 15 to 30 grams (one-half to 1 ounce), depending on the weight of the animal, has been found very efficient in cutting short an attack. However, the treatment must be begun relatively early; if delayed until after the dog's temperature has risen to 40° C. (104° F.), the outlook is much less favorable. We would recommend this treatment to veterinarians for trial in the spontaneous disease.

The dry powdered yeast (well dried) keeps well and retains much if not all of its pellagra-preventive and therapeutic activity for some weeks at least. It may be administered in a variety of ways. In pellagra we have, for the most part, given it in ordinary table sirup; less frequently in canned tomato juice, and in milk. In black tongue we have given the yeast in gelatin capsules (veterinary No. 13). It may be stirred into the food as soon as the animal begins to eat.

The beneficial effects of the yeast treatment have repeatedly been recognized by us as early as the end of the second or third day after the treatment was begun in both the human and the canine disease.

In closing this note it may be well to emphasize that in all but the severe cases of pellagra careful feeding is all that is needed. In our judgment, it is only in cases of more than average severity, or where such foods as fresh milk and fresh meat can not be procured, that yeast may serve a valuable purpose and may help to save life.

Proceedings of Societies

The Piedmont Medical Society

Held its semi-annual meeting at Charlottesville, May 30, Dr. J. F. Thaxton, of Tye River, presiding. Announcement was made of the death, since last meeting, of Dr. J. F. Williams, of Charlottesville, the first vice-president. Papers were read by Drs. E. L. Sutherland and F. D. Woodward, of Charlottesville. Dr. I. A. Bigger, of University, was elected delegate to the Richmond meeting of the State Society. Dr. F. D. Woodward, Charlottesville, was elected a member of the Society and the following officers were elected for the ensuing year: Dr. W. C. Mason, Gordonsville, president; Dr. F. C. McCue, Charlottesville, first vice-

president; Dr. T. E. Patteson, Ransons, second vice-president; and Dr. Lewis Holladay, Orange, was re-elected secretary-treasurer.

The Medical Society of Virginia, Maryland and the District of Columbia

Held its regular semi-annual meeting at Warrenton, Va., May 20, with an attendance of about sixty doctors. Dr. George T. Klipstein, of Alexandria, presided. The meetings were held at the Warrenton Country Club and between sessions the members and visitors were tendered luncheon by the local Chamber of Commerce. Papers were read by Drs. Thos. M. Foley, Wm. B. Marbury, C. Augustus Simpson, J. Lawn Thompson, and W. Calhoun Stirling, all of Washington, D. C. Resolutions were read on the death of Dr. Howard Fletcher, of Warrenton, late president of the Society. At the close of the meeting, the physicians visited the Fauquier County Hospital, recently opened in Warrenton, and expressed themselves as much pleased with the place.

It was decided to hold the next meeting in Washington, D. C., in November, and the following officers were elected: President, Dr. J. W. Bird, Sandy Spring, Md.; vice-presidents, Drs. G. Bache Gill, Washington, D. C., and J. E. Knight, Bristersburg, Va.; recording secretary, Dr. Wm. T. Davis; corresponding secretary, Dr. Joseph D. Rogers; and treasurer, Dr. Robt. Scott Lamb. The last three are of Washington, D. C., and were all re-elected.

The Virginia Society of Oto-Laryngology and Ophthalmology

Held its sixth annual meeting in Winchester, Va., May 7, Dr. James Morrison, of Lynchburg, presiding. The invited guests, Drs. James Babbitt and William Zentmayer, of Philadelphia, Dr. Harry Gradle, of Chicago, and several members gave exceedingly interesting papers. The members and visitors were entertained at a luncheon at the home of Dr. Hunter McGuire, a charter member and ex-president of the Society. Dr. H. S. Hedges, Charlottesville, was elected president; Dr. Clifton M. Miller, Richmond, vice-president, and Dr. E. U. Wallerstein, Richmond, was re-elected secretary-treasurer. It was decided to hold the 1926 meeting in Petersburg.

The Walter Reed Medical Society

Held its regular meeting on May 27 and 28 at the Eastern State Hospital, Williams-

burg, Va., under the presidency of Dr. George W. Brown, of that place. A number of interesting papers were read and the meeting was a pronounced success. The time and place of the next meeting are to be decided later by the Executive Council. The following officers were elected: President, Dr. R. R. Hoskins, Mathews; vice-presidents, Drs. J. M. Henderson, Williamsburg; S. G. Cooke, Yorktown; M. W. Crafford, Lee Hall; D. J. King, Williamsburg, and J. C. Cutler, Newport News. Drs. L. E. Stubbs and J. E. Marable, both of Newport News, were re-elected secretary and treasurer, respectively.

The South Piedmont Medical Society

Held its semi-annual meeting at South Boston, Va., April 21. Supper was tendered the members between the afternoon and evening sessions. A number of interesting papers were presented in addition to those in the symposium on Puerperal Infections. Dr. Ray A. Moore, of Phenix, presided. This was the meeting for the election of officers and Dr. J. D. Hagood, Scottsburg, was elected president, and Dr. George A. Stover, South Boston, was re-elected secretary-treasurer. Vice-presidents elected are: Drs. Sam Wilson, Lynchburg; C. D. Bennett, Chatham; H. T. Hawkins, Clover, and J. B. Bailey, Keysville. The next meeting will be held in Lynchburg, Va., on November 17, 1925.

The Hanover County Medical Society

Held its regular meeting in Ashland, in May, Dr. T. J. Stanley, of Beaver Dam, presiding, Dr. J. A. Wright, of Doswell, is secretary-treasurer. An interesting paper was read by Dr. A. B. Gravatt, of Ellerson, and resolutions were passed on the death of Dr. Charles James Terrell. By invitation, the councilor of the Third Congressional District, Dr. A. L. Gray, of Richmond, was present, and gave a talk on matters pertaining to our State organization.

The Patrick-Henry Medical Society.

At the meeting of this Society in Martinsville, Va., May 7, Dr. S. S. Gale, of Roanoke, presented a paper on "Some Fractures," which was illustrated by lantern slides. Dr. J. T. McKinney, also of Roanoke, assisted Dr. Gale in showing the lantern slides. Dr. Samuel Newman, of Danville, reported a case on "Celiac's Disease." Dr. George T. Divers, of Stuart, is president of this Society and Dr.

G. B. Dudley, Jr., Martinsville, secretary-treasurer

The Augusta County Medical Association

Held its regular quarterly meeting in Staunton, May 6, Dr. David T. Gochenour, of Stuarts Draft, presiding, and Dr. H. G. Middlekauff, of Weyers Cave, at secretary's desk. An interesting symposium on eugenics was presented. Arrangements have been made to publish these papers in an early issue of the MONTHLY.

The Truth About Medicine

In addition to the articles enumerated in our letter of March 28, 1925, the following have been accepted:

Cook Laboratories

Streptococcus Vaccine X Plain
Acne Vaccine (Cook) Combination X
Typhoid Vaccine X Plain
Typhoid Vaccine XX Combined
Whooping Cough Vaccine (Cook) X Plain
Staphylococcus Vaccine Combined

Cutter Laboratories

Rabies Vaccine (Semple)—Cutter

Eastman Kodak Company

Resorcinol Monoacetate

Hille Laboratories

Lunosol

Lunosol Capsules, 6 grains

Hynson, Westcott and Dunning

Brom-sulphalein-H. W. D.

Solution Brom-sulphalein-H. W. D.

Eli Lilly and Co.

Scarlet Fever Streptococcus Antitoxin (Unconcentrated)

Scarlet Fever Streptococcus Antitoxin (Concentrated)

H. K. Mulford Co.

Ash Tree Pollen Extract—Mulford; Bermuda Grass Pollen Extract—Mulford; Box Elder Pollen Extract—Mulford; Canary Grass Pollen Extract—Mulford; Cocklebur Pollen Extract—Mulford; Corn Pollen Extract—Mulford; Cottonwood Tree Pollen Extract—Mulford; Daisy Pollen Extract—Mulford; Dandelion Pollen Extract—Mulford; Dock Pollen Extract—Mulford; False Ragweed Pollen Extract—Mulford; Goldenrod Pollen Extract—Mulford; Johnson Grass Pollen Extract—Mulford; June Grass Pollen Extract—Mulford; Lamb's Quarters Pollen Extract—Mulford; Maple Pollen Extract—Mulford; Marsh Elder Pollen Extract—Mulford; Mountain Cedar Pollen Extract—Mulford; Mugwort Pollen Extract—Mulford; Oak Tree Pollen Extract—Mulford; Orchard Grass Pollen Extract—Mulford; Perennial Rye Grass Pollen Extract—Mulford; Plantain Pollen Extract—Mulford; Redroot Pigweed Pollen Extract—Mulford; Redtop Pollen Extract—Mulford; Russian Thistle Pollen Extract—Mulford; Rye Pollen Extract—Mulford; Sagebrush Pollen Extract—Mulford; Sugar Beet Pollen Extract—Mulford; Sunflower Pollen Extract—Mulford; Sweet Vernal Grass Pollen Extract—Mulford; Walnut Tree Pollen Extract—Mulford; Western Ragweed Pollen Extract—Mulford; Wormwood Pollen Extract—Mulford.

Sharp and Dohme

Caprokol (Hexylresorcinol-S. and D.)

Frederick Stearns and Co.

Insulin—Stearns Single Strength

Insulin—Stearns Double Strength

Insulin—Stearns Quadruple Strength

E. R. Squibb and Sons

Lentil-Allergen—Squibb

United States Standard Products Co.

Scarlet Fever Streptococcus Antitoxin—U. S. S. P.

New and Non-Official Remedies

Butesin Picrate Dusting Powder.—It is composed of butesin picrate (Jour. A. M. A., March 15, 1924, p. 876), 5 per cent and sodium stearate 95 per cent. Abbott Laboratories, Chicago.

Iron Citrate Green—P. D. and Co.—A complex ferric ammonium citrate, containing ferric citrate equivalent to 16 per cent of iron and ammonium citrate equivalent to 8.1 per cent of ammonia. For a discussion of the actions and uses of iron preparations, see New and Nonofficial Remedies, 1924, p. 165. Iron citrate green—P. D. and Co., is intended for intramuscular and hypodermic administration. Iron citrate green—P. D. and Co. is supplied in the form of ampules containing respectively 1-4 grain, 3-4 grain and 1 1-2 grain of the iron citrate green—P. D. and Co. Parke, Davis and Co., Detroit. (Jour. A. M. A., Apr. 4, 1925, p. 1045).

Timothy Pollen Extract—Swan-Myers.—A liquid obtained by extracting the dried pollen of timothy with a liquid consisting of 67 per cent glycerin and 33 per cent saturated solution of sodium chloride. For the actions and uses of allergic protein preparations, see New and Nonofficial Remedies, 1924, p. 244. The preparation is marketed in the following forms: Series I, five vials containing doses Nos. 1 to 5 inclusive. Series II, five vials containing doses Nos. 6 to 10 inclusive. Series III, five vials containing doses Nos. 11 to 15 inclusive. Complete Series, packages containing the fifteen consecutive doses. Swan-Myers Co., Indianapolis.

Allergens—Squibb.—In addition to the allergens—Squibb previously accepted (New and Nonofficial Remedies, 1924, p. 247), the following have been accepted: Bacillus Acne Allergen—Squibb; Bacillus Friedlander Allergen—Squibb; Bean (Kidney) Allergen—Squibb; Cauliflower Allergen—Squibb; Daisy Pollen Allergen—Squibb; Frog Legs Allergen—Squibb; Lentil Allergen—Squibb. E. R. Squibb and Sons, New York.

Group Allergens Diagnostic—Squibb.—In addition to the group allergens diagnostic—Squibb previously accepted (New and Nonofficial Remedies, 1924, p. 258), the following have been accepted: Group Allergens—Squibb Type V (Kidney Bean, Lentil, Lima Bean, Navy Bean, Pea); Group Allergens—Squibb Type XIII (Frog Legs, Lamb, Rabbit, Sweetbread, Veal); Group Allergens—Squibb Type XXIV (Corn, Goldenrod, Ragweed, Rye); Group Allergens—Squibb Type XXV (Bacillus Acne, Bacillus Coli, Bacillus Diphtheroid, Bacillus Influenza, Bacillus Pertussis, Bacillus Typhosus, Gonococcus. E. R. Squibb and Sons, New York.

Parathyroid Gland Desiccated—P. D. and Co.—The exterior parathyroids of the ox freed from fat, desiccated and powdered. For a discussion of the actions and uses of desiccated parathyroid gland, see New and Nonofficial Remedies, 1924, p. 224. The product is supplied in the form of tablets containing 1-10 grain. Parke, Davis and Co., Detroit.

Iletin (Insulin—Lilly) U-80, 10 c.c.—Each c.c. contains 80 units of Iletin (Insulin—Lilly) (New and Nonofficial Remedies, 1924, p. 152). Eli Lilly and Co., Indianapolis. (Jour. A. M. A., Apr. 11, 1925, p. 1119).

Protein Extracts Diagnostic—P. D. and Co.—In

addition to those protein extracts diagnostic—P. D. and Co. previously accepted (New and Nonofficial Remedies, 1924, p. 255) the following have been accepted: Apricot Protein Extract Diagnostic—P. D. and Co.; Cauliflower Protein Extract Diagnostic—P. D. and Co.; Daisy (Ox-Eye) Pollen Protein Extract Diagnostic—P. D. and Co.; Daisy (Yellow) Pollen Protein Extract Diagnostic—P. D. and Co.; Friedlander Bacillus Protein Diagnostic—P. D. and Co.; Lentil Protein Extract Diagnostic—P. D. and Co.; Micrococcus Tetragenus Protein Extract Diagnostic—P. D. and Co.; Oak Pollen Protein Extract Diagnostic—P. D. and Co.; Paratyphoid Bacillus A Protein Extract Diagnostic—P. D. and Co.; Paratyphoid Bacillus B Protein Extract Diagnostic—P. D. and Co.; Pine Pollen Protein Extract Diagnostic—P. D. and Co.; Streptococcus (Hemolytic) Protein Extract Diagnostic—P. D. and Co.; Streptococcus (Non-Hemolytic) Protein Extract Diagnostic—P. D. and Co. Parke, Davis and Co., Detroit.

Group Protein Extracts Diagnostic—P. D. and Co.—In addition to the group protein extracts diagnostic—P. D. and Co. (New and Nonofficial Remedies, 1924, p. 259) the following have been accepted: Protein Extracts Diagnostic—P. D. and Co. Group 8, Bean (Lima), Bean (Navy), Bean (String), Pea, (Lentil); Protein Extracts Diagnostic—P. D. and Co. Group 10 (Cabbage, Cauliflower, Lettuce, Parsnip, Spinach); Protein Extracts Diagnostic—P. D. and Co. Group 20 (Colon Bacillus, Gonococcus, Staphylococcus Albus, Staphylococcus Aureus, Staphylococcus Citreus); Protein Extracts Diagnostic—P. D. and Co. Group 21 (Friedlander Bacillus, Micrococcus Catarrhalis, Micrococcus Tetragenus, Pseudodiphtheria Bacillus); Protein Extracts Diagnostic—P. D. and Co. Group 22 (Pneumococcus Types I, II, and III, Streptococcus Hemolytic, Streptococcus Non-Hemolytic); Protein Extracts Diagnostic—P. D. and Co. Group 23 (Typhoid Bacillus, Paratyphoid Bacillus A, Paratyphoid Bacillus B). Parke, Davis and Co., Detroit.

Whooping Cough Vaccine X Plain—A Bacillus pertussis vaccine (New and Nonofficial Remedies, 1924, p. 320) marketed in packages of four 1 c.c. carpules (tubes) containing, respectively, 500 million, 1,000 million, 1,500 million and 2,000 million killed bacteria per c.c. and in packages of ten 1 c.c. carpules, each containing 2,000 million killed bacteria per c.c. Cook Laboratories, Inc., Chicago.

Staphylococcus Vaccine (Combined).—A staphylococcus vaccine (New and Nonofficial Remedies, 1924, p. 323) containing killed Staphylococcus Albus and killed Staphylococcus Aureus in equal proportions. It is marketed in packages of four 1 c.c. carpules (tubes) containing, respectively, 500 million, 1,000 million, 1,500 million and 2,000 million killed bacteria per c.c.; in single 1 c.c. carpule packages containing 2,000 million killed bacteria per c.c.; and in packages of ten 1 c.c. carpules, each containing 2,000 million killed bacteria per c.c. Cook Laboratories, Inc., Chicago.

Streptococcus Vaccine X Plain.—A streptococcus vaccine (New and Nonofficial Remedies, 1924, p. 325) marketed in packages of four 1 c.c. carpules (tubes) containing, respectively, 125 million, 250 million, 375 million and 500 million killed bacteria per c.c.; in single 1 c.c. carpule packages containing 500 million killed bacteria per c.c. and in packages of ten 1 c.c. carpules each containing 500 million killed bacteria per c.c. Cook Laboratories, Inc., Chicago. (Jour. A. M. A., Apr. 25, 1925, p. 1273).

Propaganda For Reform

Compatibility of Quinin and Acetylsalicylic Acid.—It has been shown that long continued heating of some of the cinchona alkaloids, particularly quinin, with weak organic acids caused the formation of an

isomer, erroneously called "quinotoxin," but more properly named quininin. These isomers were reported to be quite poisonous. However, Sollmann reviewed the question and concluded that there is no occasion to fear toxic effects from the transformation of quinin into "quinotoxin" and that this substance is not especially toxic in the quantities that might be formed in the body. Mixtures of quinin and acetylsalicylic acid decompose slowly, but they do not become appreciably toxic. (Jour. A. M. A., April 4, 1925, p. 1070).

Iron Citrate Green—P. D. and Co. Accepted for N. N. R.—The Council on Pharmacy and Chemistry explains that iron citrate green—P. D. and Co. has been accepted for New and Nonofficial Remedies. In the past, the Council has reported that the so-called iron citrate green and solutions of it intended for subcutaneous or intramuscular administration had been found inadmissible to New and Nonofficial Remedies because no evidence had been presented to show that the green iron citrate had any advantages over the pharmacopoeial iron and ammonium citrate, and because there was no evidence to show that the subcutaneous or intramuscular administration of iron preparations was rational. Parke, Davis and Co., has submitted evidence to show that the injection of solutions of the official iron and ammonium citrate and of certain brands of green iron citrate produce pain. The firm has adopted the use of a green iron and ammonium citrate containing the equivalent of 8.1 per cent of ammonia. The Council is not convinced that the hypodermic or intramuscular administration of iron yields effects which differ from those obtained by the oral administration. However, the uncertain state of iron therapy and the rather large clinical use of iron by subcutaneous or intramuscular injection, combined with the lack of danger from this method of use, appear sufficient to warrant the provisional acceptance for New and Nonofficial Remedies of iron preparations intended for subcutaneous or intramuscular use. (Jour. A. M. A., Apr. 4, 1925, p. 1045).

Composition of Bismuth Tartrates Used in the Treatment of Syphilis.—The A. M. A. Chemical Laboratory reports that there is considerable confusion concerning the chemical composition of the bismuth tartrates used in the treatment of syphilis. An examination of specimens made by the laboratory, largely to aid the Council on Pharmacy and Chemistry in passing on submitted products, shows that there is a wide variation in the chemical composition of these products, the bismuth alone varying from 31 to about 73 per cent. A specimen prepared by the method said to be used in the preparation of the product used in France as Trepol shows that this is not a potassium sodium bismuth tartrate but is, virtually, a basic bismuth tartrate containing small amounts of potassium and sodium salts as impurities. The Laboratory reports that Trepol, which the manufacturers declare to be a complex potassium sodium bismuth tartrate, does not have the composition claimed and contains needless impurities, and indicated that the manufacturers have not exercised proper chemical control of the preparation. The product manufactured by the Dermatological Research Laboratories, which is claimed to be potassium bismuth tartrate and has been accepted for New and Nonofficial Remedies, was found to have the composition claimed. A product manufactured by the Powers-Weightman-Rosengarten Co., claimed to be a potassium sodium bismuth tartrate was found to have the composition claimed.

The report brings out that, in view of the wide range in the bismuth content of this class of preparations, it is necessary that clinicians inquire carefully into the composition of the bismuth products

which they use; that some of the bismuth compounds reported on, have been used in so-called scientific research without their composition being known to the users, is a reflection on research. (Jour. A. M. A., Apr. 4, 1925, p. 1067).

The Possibility of Recovery from Diabetes Under Insulin.—A boy who was known to have had diabetes gained in carbohydrate tolerance and improved in his physical condition. He was killed by accidental fracture of the skull. An immediate postmortem examination showed changes in the pancreas that may be interpreted as evidence of regeneration of the cells of the islets of Langerhans. The findings suggest the possibility that there has been regeneration or formation of new islets since the insulin treatment was begun. Thus, there is the possibility that in juvenile diabetes there may be actual anatomical improvement under insulin treatment. (Jour. A. M. A., Apr. 18, 1925, p. 1183).

The Alimentary Implantation of Lactobacillus Acidophilus.—Those who have followed the successive changes of view regarding the dietotherapeutic role of lactic acid-producing micro-organisms since the pioneer writings of Metchnikoff on this subject, must have wondered how any feature of it can have retained scientific stability. Claim after claim has been hastily set up, only to be abandoned after a short period. Yet the practical use of the types of bacteria here concerned somehow persists in one form or another with a pertinacity that challenges some attention. Recent investigations seem to indicate that the Bulgarian bacillus cannot be implanted in the human intestines. For this reason, doubt has been cast on any alleged physiologic action of this organism in the intestine.

Preference has latterly been given to *Lactobacillus (Bacillus) acidophilus*, based on claims of superior possibilities of alimentary implantation. Recent investigations give evidence that *Lactobacillus bulgaricus* differs from *Lactobacillus acidophilus* in the ability of the latter to live in the intestinal tract. (Jour. A. M. A., Apr. 25, 1925, p. 1277).

Loeser's Intravenous Solution of Sodium Thiosulphate not Accepted for N. N. R.—Loeser's Intravenous Solution of Sodium Thiosulphate (New York Intravenous Laboratory) is marketed in ampules of 10 c.c., said to contain 1 gm. of sodium thiosulphate, U. S. P. The Council on Pharmacy and Chemistry reports that according to the advertising, this preparation is to be used in "arsenical dermatitis, mercurial stomatitis, bichlorid poisoning, skin diseases" and "Arsphenamin Dermatitis, Metallic Poisoning, Skin Diseases." The Council explains that, whereas the tenor of the advertising is to the effect that the use of thiosulphate in these conditions is supported by equal evidence, this is essentially misleading; for the evidence of its efficiency against arsphenamin dermatitis is very much stronger than that for other "metallic toxemias." The Council cautions that reliance should not be placed on thiosulphate in mercuric poisoning to the neglect of other measures. The same caution applies to the use of thiosulphate in poisoning by other metals, except that the evidence for these is even more scanty. The Council calls attention to other claims of a general character which are likely to mislead. There is, in the first place, the general claim that the intravenous solutions of this particular firm are superior to those of other firms; but there is no evidence for such claims. Finally, but most seriously, this firm through its house organ, *The Journal of Intravenous Therapy*, misrepresents the general status of intravenous therapy. Statements which are made in the firm's

advertising are distinctly misleading as to the real field for intravenous therapy and serve only to discredit that method of administration. The Council finds Loeser's Intravenous Solution of Sodium Thiosulphate inadmissible to New and Nonofficial Remedies because misleading and unwarranted claims are made for it in the advertising of the New York Intravenous Laboratory. (Jour. A. M. A., Apr. 25, 1925, p. 1289).

The Phlorhizin Test in the Diagnosis of Pregnancy.—The test is made by injecting 0.002 gm. of phlorhizin into the gluteal muscles of the patient, who has been fasting. The patient drinks 200 c.c. of water. Immediate test of the urine for sugar serves as a control. Six specimens of urine are examined, at fifteen minute intervals, for glycosuria. If glycosuria is provoked, the test is reported as positive; otherwise, negative. Reports on the reliability of the test are conflicting. (Jour. A. M. A., Apr. 25, 1925, p. 1292).

Book Announcements

Diet in Health and Disease. By JULIUS FRIEDENWALD, M. D., Professor of Gastro-Enterology in the University of Maryland School of Medicine, Baltimore, and JOHN RUHRAH, M. D., Professor of Diseases of Children in the University of Maryland School of Medicine, Baltimore. Sixth edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 987 pages. Cloth \$8.00 net.

A Compend of Gynecology. By WILLIAM HUGHES WELLS, M. D., Late Assistant Professor of Obstetrics in Jefferson Medical College, Philadelphia. Fifth edition, revised and enlarged by WILLIAM BENSON HARER, M. D., Instructor in Obstetrics in the University of Pennsylvania, etc. Philadelphia. P. Blakiston's Son & Company, 1012 Walnut Street. 1925. 12 mo. 371 pages with 167 illustrations. Cloth. Price, \$2.00 net.

Medical and Surgical Report of the Roosevelt Hospital, New York. Second Series, 1925, Based on the work of the years 1915-1924, inclusive. Editorial Board, ALEXANDER T. MARTIN, M. D., THOMAS C. PEIGHTAL, M. D., ALFRED STILLMAN, M. D., HENRY C. THATCHER, M. D., DAVENPORT WEST, M. D., and KIRBY WIGHT, M. D., Chairman. Paul B. Hoeber, Inc., Publishers. New York City. 1925. 8 vo. of 378 pages. Cloth. Price, \$5.00 net.

Clinical Features of Heart Disease. An Interpretation of the Mechanics of Diagnosis for Practitioners. By LEROY CRUMMER, M. D., Professor of Medicine, University of Nebraska. Introduction by EMANUEL LIBMAN, M. D., Professor of Clinical Medicine, Columbia University, New York. Paul B. Hoeber, Inc., New York. 1925. 8 vo. of 353 pages. Cloth. Price, \$3.00.

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Editorial

The Liver Looms Large.

Physicians in daily practice welcome the renaissance of medical and physiologic investigations of the liver. This important and many-sided organ has in the recent past suffered in medical literature a notable paucity of consideration. Recently there has been a tendency to consider problems of the infectious diseases, of the heart and blood vessels, of the ductless glands and other organs, while those of the liver have remained in the background of medical discussion. It so appears then that progress in this field has somewhat marked time, while apparently more interesting, or, at least, more pressing problems have been under consideration. Now, physiologists are working and recording observations; research laboratories in connection with clinicians are searching for an explanation of the liver's participation in various systemic diseases as well as in the diseases of the organ itself. Tests for detecting dysfunction of the liver; for bringing to light early stages of liver disease; for discovering the presence of gall-stones and cholecystitis are some of the phases of the new work in this field. There is also a distinct feeling that the liver may be the site of disease long before the body gives out secondary symptoms; it is thought, for instance, that, in Bright's Disease, the liver may be the place of pathogenesis. Of course, that large group of diseases of the gall tract, that ultimately seek relief in surgery, may find an explanation of primary pathology in an over-worked and food-poisoned liver. So, one must feel a

keen interest in the liver with its big job of carbohydrate storage, in its important function of reconversion of protein metabolites into urea for urinary elimination, in its action on fats within itself as well as by bile secretion in the intestinal tract, in its bile formation both in secretory and excretory function, in its relation to hemoglobin destruction and reconstruction, in its susceptibility to disease of its secretion in common duct and gall-bladder, in its frequency of inflammation of ducts and gall-bladder, and in its gross disease in and about the hepatic substance itself.

The liver is equipped for its work by its great size. It is outfitted with a circulatory supply of unusual proportions. The circulatory mechanism is unique. It is the only organ in the body, to which venous and arterial blood flow simultaneously, the venous blood coming in under low pressure through the portal vein, and the arterial blood under high pressure through the hepatic artery. The portal blood brings into the hepatic cells blood-food from the intestines and the hepatic arterial blood brings into the hepatic cells blood from the left heart. These blood streams meet in confluence in the hepatic cells. Hepatic cells perform various physiologic duties. The liver here plays an important role in the nutrition and well being of the body. It is now believed that the liver performs the double duty of secretion and excretion with varied intermediate functions. Is the liver not a storage plant, a settling basin, a filtration plant, a reconstructor and a food ferment forming organ? Then besides its power of storing the carbohydrate metabolites, in so far as construction of glycogen goes, besides its proper action on proteins accumulating in the blood, besides its definite action upon the blood fats, its daily production of from 500 to 800 c.c. of bile, discharged into the digestive tract upon food chyme, is a function of peculiar significance.

THE GLYCOGENIC FUNCTION OF THE LIVER

Storage of sugar is one of the chief functions of the liver. The liver cells perform this function through the action of the rich supply of glucose, brought into the organ by the portal blood which conveys food products from the intestinal canal. By a specialized function of the hepatic cells the glucose of the blood is converted into a polysaccharid or glycogen and is stored in the cells as liver-glycogen. By action not yet fully understood this:

liver-glycogen is let loose, being reconverted into glucose, into the blood of the hepatic veins in such amounts as is required to maintain the physiologic percentage of blood sugar. The glycogen substance is deposited in the protoplasm of the liver cell in irregular colloidal masses and, as such, remains there until the percentage of sugar in systemic blood becomes below normal (in man about 1 per cent). The regulatory mechanism by which this adjustment is made between the liver and the blood in point of sugar content, is probably found in the nervous system and in chemical hormones in the blood arising in the pancreas and adrenal glands.

In diabetes the combustion of the blood-sugar in the muscle is defective. As a result an excess of blood-sugar occurs. While this disease does not result from glycogen dysfunction of the liver, the relation of the dysfunction of the liver, the production of insulin in the pancreas and the utilization of the sugar in the muscle cell is so close, it is proper to comment upon the glycogen-function of the liver and diabetes mellitus in the same connection.

ITS PROTEIN FUNCTION

The part played by the liver in the metabolism of protein is important. This function is probably not fully appreciated in the consideration of disease problems, particularly in Bright's Disease. It is difficult in the space allotted here to bring out this relation fully. But, if one may conceive of the liver cell, in addition to glycogenic action, to possess the power to reduce amino-acids to urea, this dual function will impress its importance. The amino-acids are the end products of digestion of intestinal protein food. They are also the rejected or displaced protein molecules of the body cells. The liver performs the function of taking these excess amino-acids from the blood stream, whether of food origin or body origin, by converting them into urea. The liver probably stores some of this urea for future use or for replacement purposes when the body may be short of a diet of amino-acids. The liver reduces these excessive and rejected amino-acids into urea. Urea is sent into the renal blood for elimination as urine. While conservatism prevents physiologists from stating that the conversion of the amino-acids into urea is the exclusive function of the liver one

says, "it is probably safe to conclude that the liver is the most active center of amino-acid transformation and urea formation."

To emphasize, and somewhat to reiterate, protein food is not absorbed into the blood from the alimentary tract as such; protein is broken down by digestive ferments into amino-acids, eighteen amino-acids having been obtained from protein; amino-acids are divided into (1) basic amino-acids (those having an alkanity such as ammonia), (2) hexone bases, (3) neutral amino-acids, the largest group. Amino-acids in the blood go to various organs and body tissue. The protein cells of these organs and tissue sift out such amino-acids in the blood as are needed for replacement of broken down cell structure. The excess of amino-acids derived from food and amino-acid, liberated by destruction of protein, are, "then split into two portions; one represented by ammonia which is excreted as urea, and the other later oxidized in energy production." MacLeod observes that urea formation in the liver becomes stimulated long before the other tissues and that during the digestion of protein the liver does not appear to wait until the other tissues become saturated with amino-acids before it begins to destroy the unnecessary excess by conversion into urea.

The liberation of amino-acids from the break down of body protein goes on irrespective of absorption of amino-acids from the intestines. The duty of the liver in reducing these to urea for elimination through kidney tubules, is more or less constantly operative.

ITS FAT FUNCTION

The liver plays a dual part in the matter of fat; (a) the absorption through the intestinal wall is influenced by bile, (b) the formation of important bile ingredients. Absorption of fat in the food is dependent largely upon the action of bile and pancreatic secretion. While the pancreatic juice possesses a lipolytic enzyme (lipase) which, under favorable conditions, converts neutral fats into fatty acids and glycerol, bile increases the lipolytic power of pancreatic secretion. The salts of cholalic acid (bile salts) activate the lipase. In addition to this, the bile, through its alkali and mucin-like substance, assists in the emulsification of intestinal fats and, in this way, helps lipase action. The alkali of bile, combining with fatty acids, forms water soluble soaps. These

are absorbed by the epithelial cells. They pass into the lymphatic and thoracic ducts.

The blood fat is transported to and deposited into three places: (a) in depots of fat; (b) in the liver, and (c) in the tissues. The fat of each of these differs; the depot fat is 95 per cent fatty acid; tissue fat is 60 per cent fatty acid, and liver fat is intermediate in percentage of fatty acid. The depot fat is found in subcutaneous and retroperitoneal tissue and is derived from the fat and carbohydrates of the food. Carbohydrate is an important source of extra fat in depot fat and, when fat is needed for energy requirements of the body, it is broken down into fatty acid and glycerol. In this state it is carried through cell walls and reconstructed into neutral fat in the blood.

The liver fat occupies an important position in fat metabolism. It is the halfway house for preparation of the fatty acid molecule. In depot fat, the potential energy of fat, which is great, is unavailable for use in the tissues. As MacLeod says: "To make it available, the depot fat is carried to the liver, where the energy becomes unlocked but not actually liberated. The fat is then transported to the tissues and liberation of the energy occurs." Much of liver fat comes from deposit fat; when digestion is in progress, some of it may come directly from the intestines.

One may thus see the intimate relation of liver function to fat metabolism.

ITS BILE FUNCTION

Thoughtful clinicians and physiologists are thinking in terms of excretion as a bile property. The lung is excretory, the kidney is excretory, the skin is excretory; may not the liver be excretory through its 500 to 800 c.c. daily output of bile? The bile elements, its pigment, its cholic acid, its cholesterin, and its lecithin, may be important waste products. This has not been proven altogether but physiologists suggest this significant and important possibility. Bile pigment, bilirubin and biliverdin, originate from hemoglobin. It "remains undecided whether the liver alone is concerned normally in their production or whether they are produced elsewhere and simply excreted through the liver;" the general view is that hemoglobin liberated from disintegrated red corpuscles is the source of bile pigment. The bile acids, glycocholic and

taurocholic, are formed directly by liver cells. The origin of cholic acid is not definitely known, says Howell. He further states, "So far as it is present in bile as glycocholic acid, it represents a loss or excretion of so much protein nitrogen." Taurin is also derived from the protein molecule.

Cholesterol, a non-nitrogenous substance, is eliminated or excreted by liver cells from the blood. Cholesterin is widely distributed in the body, being formed, as Howell says, in white matter or medullary substance of the nervous system. Likewise, lecithin, found in the largest part in the nervous system, is a compound of glycerophosphoric acid with fatty acid radicals (stearic, oleic and palmitic) and a nitrogenous base, choline.

Lecithin represents a waste product derived from the liver, which may be further acted upon in the intestines. So, clinicians must keep clearly in mind that bile flow from the liver is an important source of elimination which, if blocked or suppressed, may in itself become an important cause in the processes of toxemia.

But, as a secretory and digestive agent, one more commonly thinks of bile. Its role in the digestion and absorption of fat in the intestines is of most striking importance. But it must not be overlooked that it acts through its companion organ, the pancreas, by activating the lipase of pancreatic secretion, which flows in confluent stream from the common duct into the duodenum upon chyme. The quantity of bile seems to be influenced by the quantity and composition of the blood flowing through the liver; the composition of the portal blood influences the amount of bile secretion.

Associated Disease of Liver and Pancreas Ducts in Diabetes.

No one may consider bile function properly without thinking of pancreatic secretion at the same time. One may think of the bile as an excretion of liver and hepatic blood without thinking so much of pancreatic juice. But when one contemplates the digestive activities of bile, its outflow into the duodenum, and its companion function with pancreatic secretion or chyme, one is compelled to think of the liver and pancreas as yoked for a common purpose: of digestion of food in the intestines. This team of glands, united in a common duct orifice for the outlet of a confluent secretion, makes the probability of a joint pathology of

frequent incidence. The large, normal, combined, daily output of bile and pancreatic secretion through the common duct is estimated to be from 1,000 c.c. to 1,600 c.c.

In connection with this, the observations of Jones* *et al*, of an unselected group of sixty-eight diabetic patients for evidence of alteration of pancreatic and hepatic activity in this disease, is interesting in that it throws a modicum of light upon this obscure interrelation in disease. They found pancreatic activity less in nearly half the cases while bile pigment elimination was abnormally high in three-fourths of the cases. They found lipolytic and proteolytic ferments abnormal in one-third of the cases. These findings in diabetics led to the probability that the secretory function of the liver and the pancreas are disturbed materially and that the digestive processes, on which the dietary management of diabetes depends, must be evaluated and known if one is to get full food values from prescribed diet. If high fat diet is required, for instance, and the lipolytic function of the bile-pancreatic secretion is so diminished as to prevent an adequate conversion of the fat for passage to the lymphatics, one may easily conceive of the whole plan of diabetic dietary management falling down. So it may be also with the proteolytic enzyme; and so, if there is not enough amylolytic enzyme for carbohydrate conversion. It is also interesting and significant to note that 19 per cent of Jones' cases showed cholelithiasis and others gave the history of surgical operation on the gall tract.

The probability of considerable disease, often without obtrusive symptoms of the bile and pancreatic ducts, if not of the liver and pancreas as well, in cases of diabetes mellitus is very great and should be thought of in these cases. The authors contend from their study of sixty-eight diabetics that at least one-fifth of all diabetics over forty have an associated cholelithiasis.

*J. A. M. A., May 16, 1925, page 1524.

Read Truth About Medicine.

Every practicing physician should scan with more than ordinary care the excerpts found in "*Truth About Medicine*." In this collection of comments upon medicine and medical treatment, is to be found much valuable information.

Reports of the investigations of the Council on Pharmacy and Chemistry of the American

Medical Association on drugs and treatment are full of valuable facts. These facts are important to every practicing physician. Each day there may arise in the treatment of cases questions that the doctor might find answered in the reports of the Council.

Particularly this month the reports are full of "meat." We can not too strongly urge physicians, surgeons and specialists to read each month "*Truth About Medicine*," as reported in the MONTHLY through the courtesy of the Council on Pharmacy and Chemistry.

News Notes

Medical College of Virginia Finals.

The schools of medicine, dentistry, pharmacy and nursing of the Medical College of Virginia held their commencement exercises May 31 to June 2, inclusive. The baccalaureate sermon was preached by Rev. Solon B. Cousins, D. D., of the Second Baptist Church. On the following day, there was a meeting of the board of visitors, a baseball game between the graduates and alumni, the annual alumni dinner at Commonwealth Club, that evening, and this was followed by the free show in the John Marshall High School auditorium, which partook of the nature of a vaudeville show. The alumni meeting was held on Tuesday morning, following which luncheon was served at the college.

At the meeting of the Alumni Association, Dr. Greer Baughman, Richmond, was elected president; W. H. Street, D.D.S., first vice-president; Dr. Edgar P. Norfleet, Roxobel, N. C., second vice-president; John D. Pruitt, Ph.G., Danville, third vice-president; Miss Florence Black, R. N., Richmond, fourth vice-president; Dr. F. H. Beadles, Richmond, treasurer; the secretary is to be named by the board of directors.

Dr. Stuart McGuire, president of the college, presided at commencement exercises and Dr. W. T. Sanger, the newly elected head of the school, who will take charge in July, gave a brief talk. The address of the evening was given by the Honorable Andrew Jackson Montague, Congressman from Virginia. A dance at Commonwealth Club for the graduates of all the schools brought to a happy termination the exercises for the class of '25.

At the various meetings, plans were discussed for the expansion of the college, and it

was decided to put on a campaign in the early Fall to raise \$3,000,000 to meet the needs of the College.

At the concluding exercises, diplomas were awarded sixty-four graduates in medicine, ten in dentistry, thirty-six in pharmacy and twelve in nursing.

Following is a list of graduates in the medical school, with hospital appointments:

Memorial Hospital, Richmond—Drs. Tiffany Barnes, Proctorville, N. C.; Charles D. Garrett, Rocky Mount, Va.; Wm. T. Harris, Mt. Gilead, N. C.; John A. Hillsman, Jr., Richmond; M. B. Jarman, Elkton, Va.; Maurice M. Lynch, Jr., Winchester; Charles L. Plunkett, Richmond; Joseph E. Rucker, Moneta; Olga Steinecke, Keystone, W. Va.; George H. Warren, Jr., Smithville; B. L. Williamson (dental interne); and undergraduates, Miss Jeannette Harris, H. C. Alexander, Jr., and S. E. Gunn.

Johnston-Willis Hospital, Richmond—Drs. Dempsey Barnes, Proctorville, N. C., and William R. Graham, Suffolk, Va.

St. Luke's Hospital, Richmond—Drs. D. G. Chapman, Woodstock, and William M. Junkin, Lexington, Va.

Grace Hospital, Richmond—Dr. Alva B. Clark, Bramwell, W. Va., and undergraduate J. H. Childrey.

George Ben Johnston Memorial Hospital, Abingdon, Va.—Dr. R. D. Campbell, Cleveland, Va.

Bluefield Sanitarium, Bluefield, W. Va.—Dr. A. L. Carson, Jr., Richmond.

Boston Floating Hospital, Boston, Mass.—Dr. Fred A. Brown, Richmond.

Long Island Hospital, Boston, Mass.—Dr. Edith J. Lacy, Vigor, Va.

Massachusetts Eye and Ear Infirmary, Boston, Mass.—Dr. Raymond F. Hacking, Providence, R. I.

Peck Memorial Hospital, Brooklyn, N. Y.—Dr. Edwin S. Woodyard, Parkersburg, W. Va.

Unity Hospital, Brooklyn, N. Y.—Dr. William Grosof, Brooklyn, N. Y.

Catawba Sanatorium, Catawba Sanatorium, Va.—Dr. L. Gladys Smithwick, Manson, N. C., and undergraduates H. L. Townsend and Harry Walker.

C. & O. Hospital, Clifton Forge, Va.—Dr. S. G. Miller, Roseland, Va.

Hamot Hospital, Erie, Pa.—Dr. Hyman P. Levin, Cleveland, O.

Jersey City Hospital, Jersey City, N. J.—Dr. Harold C. Brinn, New York, N. Y.

St. Francis Hospital, Jersey City, N. J.—Drs. Robley R. Goad, Hillsville, Va.; Dana T. Moore, Oakland, Md., and James C. Repass, Paint Lick, Va.

Lancaster General Hospital, Lancaster, Pa.—Dr. Robert C. Lefevre, Lancaster, Pa.

Beth Moses Hospital, New York, N. Y.—Dr. Bernard Disick, New York, N. Y.

Flushing Hospital, New York, N. Y.—Dr. V. J. Merola, Bronx, N. Y.

Gouverneur Hospital, New York, N. Y.—Drs. Joe R. Carder, Bristol, W. Va.; R. S. Coffindaffer, Jane Lew, W. Va., and A. M. Jones, Smithton, W. Va.

Holy Family Hospital, New York, N. Y.—Drs. Bernard N. Gottlieb, Brooklyn, N. Y., and Harry S. Newman, Richmond.

Metropolitan Hospital, New York, N. Y.—Dr. Samuel Weinstein, Richmond.

New York Lying-In Hospital, New York, N. Y.—Dr. Maurice B. Bangel, Portsmouth.

Polyclinic Hospital, New York, N. Y.—Drs. J. M. Dougherty, Jr., Nickelsville, and Ashby G. Martin, Toano.

Willard Parker Hospital, New York, N. Y.—Drs. E. Andrew Amick, Charleston, W. Va., and Andrew G. Grinnan, Richmond.

St. Vincent's Hospital, Norfolk, Va.—Dr. Anthony A. Colletti, Richmond.

Petersburg Hospital, Petersburg, Va.—Dr. Elvin H. Hearst, Bristol, Va., and undergraduates Gilbert Daniel and W. M. Dick.

Western Pennsylvania Hospital, Pittsburgh, Pa.—Dr. Everett H. Starcher, Ripley, W. Va.

Rex Hospital, Raleigh, N. C.—Dr. John F. Powers, Watha, N. C.

Lewis-Gale Hospital, Roanoke, Va.—Dr. C. F. Manges, Troutville.

N. C. State Sanatorium, Sanatorium, N. C.—Dr. Clyde M. Gilmore, Boulee, N. C.

Uniontown Hospital, Uniontown, Pa.—Dr. William Grady Smith, Charlotte, N. C.

Wake Forest College, Wake Forest, N. C.—Dr. F. W. Carroll, Winterville, N. C.

Providence Hospital, Washington, D. C.—Dr. Robt. C. O'Neil, Warren, R. I.

City Memorial Hospital, Winston-Salem, N. C.—Drs. David M. Buck, Jr., Bald Mountain, N. C., and Charles S. White, Stovall, N. C.

City Home Hospital, Richmond—Undergraduates A. S. Davis, L. G. Hastings and J. J. McDonald.

City Jail Hospital, Richmond—Undergraduates R. A. Bowen and M. W. Ransone.

Home for Incurables, Richmond—Undergraduate F. E. Ammons.

Hygeia Hospital, Richmond—Undergraduate Frank B. West.

Retreat for the Sick, Richmond—Undergraduate Geo. G. Chiles.

Sheltering Arms Hospital, Richmond—Undergraduates W. T. Burch, Jos. B. Gordon and Thos. L. Lee.

Tucker Sanatorium, Richmond—Undergraduate Jas. A. Shield.

Presbyterian Hospital, San Juan, Porto Rico—Undergraduate R. R. Molina.

In addition to the graduates named above, the following received their diplomas in medicine but hospital appointments have not been announced for them at this time:

Dr. John B. Ahouse, New Milton, W. Va.

Dr. Waylon Blue, Carthage, N. C.

Dr. Geo. Wythe Booth, Richmond.

Dr. Mack W. Gibson, Statesville, N. C.

Dr. E. B. Hardee, Stem, N. C.

Dr. Merritt M. Hill, Nuttallburg, W. Va.

Dr. Alonzo R. Hodge, Jr., Knightdale, N. C.

Dr. James A. Newcome, Keyser, W. Va.

Dr. Robt. S. Van Metre, Martinsburg, W. Va.

Dr. Perry H. Wiseman, Henrietta, N. C.

The American Medical Association

Held its seventy-sixth annual meeting at Atlantic City, N. J., May 25 to 29, inclusive, under the presidency of Dr. W. D. Haggard, of Nashville, Tenn. There was a registered attendance of nearly 4,800 and the meeting was a success in every way. In the House of Delegates, Virginia was represented by Dr. Southgate Leigh, of Norfolk, and Dr. E. C. S. Taliaferro, also of Norfolk. The latter substituted for Dr. J. Allison Hodges, of Richmond, who was unable to attend the meeting this year.

There is so much of interest and pleasure going on at these meetings of the A. M. A., that one has the impression of attending a "five-ring circus," where you try to see everything and be everywhere at once. Of outstanding interest were the scientific exhibits. Dr. C. Latimer Callander, of San Francisco, was recipient of the gold medal award. In addition to this, two silver, and two bronze medals were awarded, as also a number of certificates of merit. Although awards are made to individuals only, the Committee especially

commended the work of the heart study group, composed of Drs. George Blumer, of New Haven, Alex. Lambert and Emanuel Libman, of New York, and S. Calvin Smith, of Philadelphia. This exhibit was of exceptional educational value. The work of the St. Elizabeth's Hospital Group, of Richmond, Va., was also commended.

The Council on Scientific Assembly decided to drop the section on stomatology and established a section on radiology.

A most unusual feature of the meeting occurred on Thursday evening. Through the co-operation of the American Telephone and Telegraph Company, there was witnessed the diagnosis of heart disease by long distance telephone, and the audience heard the conversation between the doctor in charge of the "clinic" at the Atlantic City meeting and a doctor in Chicago by means of a Public Address System.

The House of Delegates expressed itself as favorable to Dallas, Texas, as the 1926 place of meeting. The following officers were elected: President-elect, Dr. Wendell C. Phillips, of New York; vice-president, Dr. Philip Marvel, Atlantic City, N. J.; secretary, Dr. Olin West, Chicago; treasurer, Dr. Austin A. Hayden, Chicago; speaker of the House of Delegates, Dr. F. C. Warnshuis, Grand Rapids, Mich. Dr. J. Shelton Horsley, Richmond, Va., was re-elected a member of the Council on Scientific Assembly, with which he has been connected since its organization.

Virginia was unusually well represented at this meeting, the following being names of those registered: *From Richmond*—Drs. K. S. Blackwell, A. S. Brinkley, Mary E. Brydon, Dean B. Cole, C. C. Coleman, T. Dewey Davis, A. I. Dodson, R. S. Fitzgerald, E. T. Gatewood, A. L. Gray, St. Geo. T. Grinnan, Guy R. Harrison, Wm. H. Higgins, Emory Hill, Fred M. Hodges, J. Shelton Horsley, J. S. Horsley, Jr., J. M. Hutcheson, F. S. Johns, Lazarus H. Karp, Francis H. Lee, Clifton M. Miller, S. B. Moon, W. T. Oppenheimer, W. T. Oppenheimer, Jr., L. T. Price, M. P. Rucker, W. A. Shepherd, Henry S. Stern, Jas. B. Stone, L. T. Stoneburner, E. H. Terrell, Howard Urbach, E. U. Wallerstein, J. S. Weitzel, Carrington Williams and R. H. Wright; *from Norfolk*—Drs. Burnley Lankford, Southgate Leigh, Walter B. Martin, W. T. Potter, E. C. S. Taliaferro and J. War-

ren White; *from Roanoke*—Drs. S. S. Gale, J. R. Garrett, K. D. Graves, Alfred P. Jones, L. D. Keyser, Geo. B. Lawson, J. T. McKinney, W. M. Otey and D. M. Remsberg; *from University*—Drs. L. A. Calkins, J. C. Flippin, Wm. H. Goodwin, H. B. Mulholland, L. T. Royster and Dudley C. Smith; *from Petersburg*—Drs. Jos. M. Burke and E. L. McGill; *from Winchester*—Drs. Hunter H. McGuire and H. I. Pifer; *from Alexandria*—Drs. F. M. Dillard and S. B. Moore; *from Blackstone*—Drs. W. W. Bennett and C. C. Tucker; *from Tazewell*—Drs. W. I. Painter and Isaac Peirce; *from Lexington*—Drs. F. M. Leech and Jos. E. Seebert; *from Danville*—Drs. L. O. Crumpler and J. M. Robinson; *from Charlottesville*—Drs. H. T. Nelson and Fletcher D. Woodward; Drs. H. S. Belt, South Boston; B. C. Culler, Fieldale; J. L. Early, Saltville; J. M. Emmett, Clifton Forge; F. V. Fowlkes, Burkeville; Thos. G. Hardy, Farmville; J. M. Holloway, Port Royal; R. E. Hughes, North Holston; Ira Hurst, Parksley; D. M. Kipps, Front Royal; A. D. Knott, Accomac; Allen H. Moore, New Market; W. H. Newcomb, Suffolk; A. D. Ownbey, Newport News; B. E. Rhudy, Abingdon; A. F. Robertson, Jr., Staunton; John W. Robertson, Onancock; N. M. Robinson, Vinton; E. D. Rollins, Gate City; H. B. Spencer, Lynchburg; and Wm. J. Sturgis, Franktown.

Richmond Meeting, Medical Society of Virginia.

Now that the A. M. A. meeting is over, the most important matter to claim the attention of Virginia doctors should be the meeting of our State Society. This is to be held in Richmond, October 13, 14, 15 and 16, and plans being made by the local committee in charge, with Dr. Thomas D. Jones, as chairman, should be such as to induce a large attendance. Our president, Dr. Hunter H. McGuire, of Winchester, has been fortunate in securing as his invited guests Dr. David S. Hillis, obstetrician of Chicago, Dr. Geo. E. de Schweinitz, ophthalmologist of Philadelphia, and Dr. Alfred Stengel, internist of Philadelphia.

"Puerperal Infection" is the subject which has been selected by the Program Committee for our symposium, this year, and the following doctors have been invited to present papers:

Dr. Burnley Lankford, Norfolk, on "Prevention;"

Dr. L. A. Calkins, University, on "Manifestations and End Results;" and

Dr. Ben H. Gray, Richmond, on "Treatment."

Dr. George A. Stover, of South Boston, will open the discussion on this symposium.

Each component society should arrange for representation in the House of Delegates. As delegates and alternates are appointed, notice should be sent the executive office of the Society.

In accordance with resolution adopted at the Staunton meeting of the Medical Society of Virginia, the Program Committee decided to limit the number of papers to be read at the next annual meeting so that it would not be necessary for the Society to meet in sections, and adopted the following resolution:

"1. No title shall be accepted for the program prior to two months before date of the annual meeting. As provided in the By-Laws, an announcement concerning the annual meeting and request for titles of papers shall be mailed by the Secretary-Treasurer to all members of the Society.

"2. On and after the day which would be two months prior to the first day of the annual meeting, titles will be received until fifty are in hand. In the fifty titles referred to, provision shall be made for the papers of the invited guests and papers on the subject of general discussion.

"3. After the fifty titles are received, the Program Committee shall arrange and classify them according to related subjects."

This year, August the 13th (two months before first day of the Richmond meeting) will be the first day on which the Secretary-Treasurer of the Society may receive titles for the 1925 meeting.

It is therefore requested that members time the sending of their titles so that they may reach the Society's office, 104½ West Grace Street, Richmond, on the 13th of August, or as soon thereafter as possible.

North Carolina Chapter, Medical College of Virginia Alumni Association.

Mr. L. C. Bird, secretary of the Alumni Association of the Medical College of Virginia, attended the recent meeting of the Medical Society of the State of North Carolina, held at Pinehurst, and organized a North Carolina Chapter of the Alumni Association. There are between 300 and 400 alumni of the school living in North Carolina and it is planned to hold the meeting of the new chapter at the time of their State Society meeting each year. Dr. W. T. Rainey, Jr., Fayetteville, was elected

president; Dr. R. V. Brawley, Salisbury, vice-president; and Dr. J. M. Lilly, Fayetteville, secretary.

Dr. William F. Drewry,

Petersburg, Va., left for New York, the first of June, to witness the graduation of his daughter, Miss Lelia Seabury Drewry, in the physical training school at Columbia University.

The National Association for the Study of Epilepsy

Held its twenty-fourth annual meeting in Richmond, Va., May 11 and 12, Dr. G. Kirby Collier, of Rochester, N. Y., presiding. The papers, while of a technical nature, were exceedingly interesting. The influence of this Society has been a stimulant in urging legislatures in some states to establish epileptic colonies. These colonies have already been opened in over twenty states, Virginia being in this number. A committee was appointed, to report at the next annual meeting, on the feasibility of merging the National Association for the Study of Epilepsy and the American Association for the Study of the Feeble-minded with the American Psychiatric Association, the plan being to have sectional meetings. Dr. G. Kirby Collier, Rochester, N. Y., and Dr. A. L. Shaw, Utica, N. Y., were re-elected president and secretary-treasurer, respectively. Dr. Douglas A. Thom, of Boston, was elected chairman of the executive committee.

The American Psychiatric Association

Held its eighty-first annual meeting in Richmond, Va., May 12-15, inclusive, Dr. William A. White, of Washington, D. C., presiding. About four hundred specialists from all sections of the country were in attendance and the program throughout was a most interesting one for the layman as well as the doctor. A steady downpour of rain for practically the full meeting time interfered with much of the entertaining which had been arranged for the visitors, but plans were carried out as far as possible. Perhaps the most interesting feature of the meeting was the address to the profession and the public by Clarence Darrow, Esq., of the Chicago bar. He completely captivated his audience which included people from all walks of life.

The visitors were taken to Williamsburg, on the 14th, as the guests of the Eastern State Hospital, at that place, and from there, sight-

seeing trips were made by many of the members to Yorktown and Jamestown. It was especially appropriate that one of the meetings should be held at this hospital, which is the oldest hospital in the United States used exclusively for the insane, the first patients having been admitted to this hospital in 1773.

New York was selected as the 1926 convention city, and the following officers elected: President, Dr. C. Floyd Haviland, Albany, N. Y., Dr. George M. Kline, of Boston, vice-president, and Dr. Earl D. Bond, Philadelphia, (re-elected) secretary-treasurer.

Dr. and Mrs. Ashby Turner

Returned to their home in Harrisonburg, Va., early in May, after spending the winter in Florida.

Dr. and Mrs. Arthur Bryan Carr

And two little children, of War, W. Va., have been visiting Mrs. Carr's parents in Richmond. Dr. Carr is an alumnus of the Medical College of Virginia, in the class of '21.

The McGuire Clinic Enlarges its Staff.

The McGuire Clinic has added Dr. James H. Smith to its Medical Department and Dr. Carrington Williams to its Department of Surgery. They went on duty June 1st. Both have been associated with St. Luke's Hospital in the past, and their many friends will be glad to see them connected with its activities again.

Dr. and Mrs. Mark W. Peyser,

Of Richmond, were recent visitors in Louisa, Va. Dr. Peyser's many friends will be glad to know that he has greatly improved after a long illness last winter and is now able to resume his work.

Dr. and Mrs. Frank S. Johns,

Richmond, spent a short time at Hot Springs, early in May.

Dr. S. W. Maphis

Has returned to his home in Warrenton, Va., after spending sometime in New York.

Dr. W. S. Hodnett,

Richmond, left the latter part of May for Los Angeles, Cal., to attend the Shriners' convention. After that, he will spend about a month visiting points of interest on and near the Pacific coast.

Dr. G. A. Ezekiel,

Richmond, in May went to Philadelphia, where he attended the reunion of officers of the 311th Field Artillery with which he served

during the World War. While away, Dr. Ezekiel also visited New York, Baltimore and Washington.

Dr. Beverley R. Tucker,

Of Richmond, in May, attended the meeting of the Florida State Medical Association in St. Petersburg, having been invited to present a paper before that organization. His subject was "Concerning Encephalitis." He spoke enthusiastically of the splendid organization of the Florida profession.

Dr. Meade S. Brent,

Petersburg, Va., recently visited relatives near Heathsville, Va.

Dr. H. S. Daniel,

Of Louisa, Va., was a visitor in Richmond, last month.

Dr. Thornton Dean of Dental School.

At a meeting of the dental faculty of the Medical College of Virginia, last month, Dr. R. D. Thornton was chosen to succeed Dr. J. A. C. Hoggan, resigned, as dean of the School of Dentistry. The appointment will become effective July 1. Dr. Thornton will devote his full time to his work with the dental school.

Dr. J. Thomson Booth

Recently returned to his home in Ashland, Va., after a visit to Baltimore and Philadelphia. He and Mrs. Booth left shortly afterwards for California, where they expect to visit relatives.

Married.

Dr. Meade Castleton Edmunds, of Petersburg, Va., and Miss Marian Smoot, of Bowling Green, Va., May 23.

Dr. W. Clyde Adkerson and Miss Anna Bell Fox, both of Lynchburg, Va., May 9.

Dr. Henry G. Plaster, formerly of Loudoun County, Va., but now of Washington, D. C., and Miss Jerusha Steele Lohman, of Washington, D. C., April 30.

Dr. J. Woods Price,

An alumnus of the University of Virginia, has returned to his home at Saranac Lake, N. Y., after a visit to friends and relatives near Ivy, Va.

\$100,000 to be Raised in Commemoration of Ernest Harold Baynes.

A distinguished group of doctors and naturalists have banded together for the purpose of raising a memorial fund to the memory of Ernest Harold Baynes, author, lecturer,

poet, lover of birds and animals and of all mankind. Mr. Baynes died at his home in Meriden, N. H., on January 21st of this year.

The debt of both doctors and naturalists to Mr. Baynes is a heavy one, as he not only did more perhaps than anyone else in stirring up popular interest in the great outdoors, but loving animals, he investigated the sensational charges of the anti-vivisectionists and, finding them groundless, gave unstintingly of his time and energy and made great financial sacrifices in an effort to combat anti-vivisection propaganda.

As much of the income from the fund as may be necessary will be paid, at the discretion of the committee, to Mr. Baynes' widow. The remainder, and at her death the principal, will go to the American Association for Medical Progress, that society which Mr. Baynes helped to organize for the dissemination of truth concerning the value of scientific medicine, and in which he was so interested at the time of his death. The fund will be administered by the First National Bank of Boston as Trustees.

Dr. Charles W. Putney,

Of Staunton, Va., following an operation for acute appendicitis, visited friends in West Point, Va., before resuming his practice about the middle of May.

Post-Graduate Course in North Carolina This Summer.

The University of North Carolina has again arranged for summer post-graduate courses in that State, this year in pediatrics. Between fifty and hundred physicians have already signified their intention of attending these lectures, which will be given by Drs. J. V. Cooke, Alexis F. Hartmann and Wayne A. Rupe, all of the Washington University School of Medicine, St. Louis.

Dr. G. Craig Eggleston,

Of Amelia, was a recent visitor in Richmond.

Dr. Roshier W. Miller

Has been re-elected vice-chairman of the Richmond, Va., School Board.

The Graduate Nurses' Association of Virginia

Held its annual meeting at University, Va., May 12, 13 and 14. The attendance was large and a number of interesting papers and round table discussions were had. The social features also were most enjoyable. Officers elected are:

President, Miss Agnes Randolph, Richmond; vice-presidents, Miss L. L. Odom, Norfolk, Miss Hattie Norris, Roanoke, and Miss Evelyn Hill, Harrisonburg; secretary, Miss Natalie Curtis, Richmond; treasurer, Miss F. A. Bishop, Portsmouth; and chairman of the board of directors, Miss Josephine McLeod, University.

Re-Elected on N. C. State Board of Health.

Drs. Cyrus Thompson, of Jacksonville, and D. A. Stanton, High Point, have been re-elected members of the North Carolina State Board of Health, for terms of six years.

Dr. Magee Loses His Country Home.

The summer home of Dr. M. D'Arcy Magee, of Washington, D. C., located in Loudoun County, Va., was struck by lightning, in a recent storm, and the house and its contents were destroyed.

Dr. and Mrs. Hunter McClung

And family, of Lexington, Va., were recent visitors in Crozet, Va.

Hospitalization of War Veterans.

As a matter of interest, we note that the U. S. Veterans Bureau is now operating forty-nine hospitals, seventy-four dispensaries, ninety-four clinical laboratories, about 100 X-ray laboratories, and housing over 29,000 patients. The Bureau is constantly constructing and opening new hospitals and incorporating additional facilities in those already open. These hospitals are modern and complete as science and careful planning can make them and no detail of utility or convenience is sacrificed to a false prompting toward economy. These hospitals are open to veterans of any war in which the United States has participated since 1897, and already over 2,000 have availed themselves of this benefit. It is considered a much greater service to give a man back his health and with it his economic independence than merely to maintain him in a hospital and pay him compensation, and this is made the chief endeavor of the Bureau.

The South Carolina State Medical Association,

At its annual meeting in Spartanburg, recently, elected Dr. Robert S. Cathcart, of Charleston, president, Dr. W. B. Lyles, of Spartanburg, first vice-president, and re-elected Dr. E. A. Hines, of Seneca, secretary-treasurer. The 1926 meeting is to be held at Sumter.

Dr. A. D. Ownbey

Returned to his home in Newport News, Va., about the middle of May, after a cruise with the Naval Reserves to Havana, Cuba.

Dr. Wm. de B. MacNider,

Chapel Hill, N. C., recently elected president of the Medical Society of the State of North Carolina, has further been honored recently by the appointment at Harvard Medical School as physician-in-chief for a week at Peter Bent Brigham Hospital.

Named Members of Honorary Fraternity.

At the meeting in May of the Phi Beta Kappa honorary fraternity in Ashland, the following doctors among the alumni of Randolph-Macon College were installed as members: Dr. Karl Blackwell, Richmond; Dr. C. H. Lavinder, of the U. S. Public Health Service, at Staten Island, N. Y., and Dr. A. Chambers Ray, of Ashland.

Dr. Fletcher D. Woodward,

Formerly of Newport News, Va., has moved to Charlottesville, Va., with offices at 104 East Market Street. He is associated with Dr. H. S. Hedges.

Dr. R. L. Creekmur,

Richmond, has tendered his resignation as a member of the medical corps of the Virginia national guard, because of his inability to attend the summer encampment.

Dr. Ray A. Moore,

Of Phenix, Va., and a prominent doctor of the Southern section of this State, has been selected to act as camp doctor, this summer, for the Richmond Girl Scouts.

Dr. and Mrs. Lewis M. Cowardin,

Of Hot Springs, Va., formerly of Richmond, celebrated their golden wedding anniversary, May 27, at their home at Hot Springs. At this celebration there were present two other couples who had been married over fifty years.

Dr. Thomas F. Dodd,

Alexandria, R. F. D. 3, Va., is connected with the U. S. Veterans' Bureau, Washington, D. C., as a tuberculosis specialist.

Attend American Legion Executive Committee.

Drs. A. T. Finch, Chase City, and W. B. Peters, Appalachia, were among those who recently attended a meeting of the State executive committee of the American Legion, in Richmond.

Dr. R. M. Shelton,

Formerly of Gretna, Va., is now located at Valentines, Va.

Lt. Com. Micajah Boland, M. C., U. S. N.,

Who has been Medical Director, Gendarmerie d'Haiti, has been transferred to Receiving Barracks, Naval Operating Base, Hampton Roads, Va.

Dr. R. H. Harrington

Has moved from Elk Creek, Va., to Grant, Va.

Dr. R. L. Hillman

Announces his change of address from Wilder, Va., to Emory, Va.

Dr. Chester E. Haberlin,

Of Bridgeport, Conn., who graduated from Medical College of Virginia last year, is now at Metropolitan Hospital, New York, N. Y.

Dr. Tom A. Williams

Has returned to his home in Washington, D. C., after spending the winter at Miami, Fla.

The Association of Southern Railway Surgeons,

At its annual meeting recently held in Savannah, Ga., elected Dr. William H. Taylor, of New Market, Tenn., president, and decided to meet next year in Baltimore, Md.

What is a "Nixie?"

A "Nixie" is a piece of mail so carelessly addressed and poorly wrapped that it can neither be delivered nor returned without special treatment. The Dead Letter Office that handles 20,000,000 of these "Nixies" yearly is a cemetery of live ideas entombed in misdirected envelopes.

Do you know: That 21,000,000 letters and 803,000 parcels went to the Dead Letter Office last year; that 100,000 letters go into the mail yearly in perfectly blank envelopes; that \$55,000 in cash is removed annually from misdirected mail; that \$12,000 in postage stamps is found in similar fashion; that \$3,000,000 in checks, drafts, and money orders never reach intended owners; that Uncle Sam collects \$92,000 a year in postage for the return of mail sent to the Dead Letter Office; that it costs Uncle Sam \$1,740,000 yearly to look up addresses on misdirected mail; that 200,000,000 letters are given this service yearly; and that it costs in one city alone \$500 daily? A letter worth writing is worthy of care in addressing and should contain a return address.

MORAL: Every man knows his own address if not that of his correspondent. Put it in the upper left hand corner!

Wanted.

To buy practice in Virginia or West Virginia. Would buy office equipment or property. Reasons for leaving present location want to locate near high school. Graduate of Medical College of Virginia. References: West Virginia State Medical Association and County Medical Society. Nothing but a good proposition considered. Answers should be sent to No. 415, care this journal. (Adv.)

Obituary

Dr. William Wamach Chaffin,

Ex-president of the Medical Society of Virginia and one of the most beloved physicians in the Southwestern section of this State, died suddenly in his office at Pulaski, May 7, as he was preparing to go to the hospital to operate. He had been suffering from serious heart trouble for about a year and, for this reason, was prevented from presiding at the Staunton meeting of the State Society, last Fall.

Dr. Chaffin was born in Wythe County, Va., May 5, 1868. After several years at Washington and Lee University, at Lexington, Va., he took up the study of medicine at Jefferson Medical College, Philadelphia, from which he received his diploma in 1893. He joined the Medical Society of Virginia that year and attended its meetings regularly. In 1895, he located in Pulaski and was always interested in every move for the advancement of the interests of his adopted home. He was a member of the State Board of Health and had been a member of the State Medical Examining Board since 1911. He was a charter member and ex-president of the Southwestern Virginia Medical Society, a member of the American Medical Association and numerous medical organizations, chairman of the Pulaski County Board of Health, and a surgeon of the Norfolk and Western Railway. Dr. Chaffin was also a Mason and a charter member and ex-president of the Pulaski Rotary Club. He had an attractive personality and had made for himself a host of friends. In his relation toward

other people, it may be truly said of him that he was

"To their virtues very kind,
And to their faults a little blind."

He is survived by his widow, who was Miss Mary Claire McGill, formerly of Richmond, one daughter, an adopted daughter, and a number of relatives.

Dr. William Henry Edmundson.

A prominent physician and citizen of Christiansburg, Va., died suddenly at his home in that place, May 15. Although he had not been in good health for sometime, he was actively engaged in practice and had been out until a few hours before his death. Dr. Edmundson was seventy-six years of age and studied medicine at the Medical College of Virginia, from which he graduated in 1875. He had been a member of the Medical Society of Virginia since 1885. During the War between the States, he was a member of the 54th Virginia Regiment, and was in a number of important battles. His wife died several years ago, but he is survived by a son and two daughters.

Dr. Andrew Symington Ellett,

A prominent physician of Christiansburg, Va., died suddenly June 3, from heart trouble following an operation for appendicitis which was performed the day before. To the time of this operation, Dr. Ellett had appeared in his usual health and had attended the luncheon of the Rotary Club on June 1. He was born in Christiansburg, forty-five years ago, and studied medicine at the University of the South, Sewanee, Tenn., from which he graduated in 1901. He had been a member of the Medical Society of Virginia since 1905. Dr. Ellett was unmarried but is survived by a number of brothers and sisters.

Dr. Albert Earle Holmes,

Associate physician at Mt. Regis Sanatorium, Salem, Va., was found dead in bed at a hotel in Roanoke, Va., May 21, death apparently being due to an overdose of medicine which he had taken. Dr. Holmes had for sometime suffered serious trouble with his eyes and was much depressed over his condition. He was thirty-two years of age and was from Tampa, Florida, to which place his remains were taken for burial. He graduated in medicine from Vanderbilt University, Nashville, Tenn., in 1916, and had been a member of the

Medical Society of Virginia since 1923. He was also a Mason. His widow and young son survive him.

Dr. John W. Williams,

Formerly of Richmond, died May 11, at his home of Irwin, Va., aged eighty-six years. He graduated from the Medical College of Virginia in 1864 and had been a member of the Medical Society of Virginia for a number of years. He made his home in Richmond for about thirty years, prior to moving to Goochland County. Dr. Williams is survived by his wife to whom he was married only a few weeks before his death.

Resolutions on Death of Dr. Charles James Terrell.

WHEREAS, The Creator in His infinite wisdom has seen fit to remove from the walks of men, our fellow laborer and friend, Dr. Charles James Terrell, of Hewlett, Va.:

RESOLVED, That The Hanover County Medical Society hereby express its appreciation of his professional, private and public life and its sympathy for his bereaved family;

RESOLVED, That this tribute of respect be spread upon the minutes of this Society, published in the VIRGINIA MEDICAL MONTHLY and a copy sent to his son, Dr. E. A. Terrell, of Fredericks Hall, Va.

HANOVER COUNTY MEDICAL SOCIETY,

A. C. RAY, M. D.,

J. A. WRIGHT, M. D.,

Committee.

Dr. Alfred Copeland Palmer,

Formerly a member of the Medical Society of Virginia, died May 29, at his home at Urbanna, Va. Dr. Palmer was a native of Middlesex County, Va., and about sixty-eight years of age. He studied medicine at the University of Maryland, from which he received his diploma in 1881. He was a vice-president of the Medical Society of Virginia in 1889 and was at one time a member of the State Board of Medical Examiners.

Dr. Leslie Clyde Burton,

For twelve years a practicing physician at Clayville, Va., died May 20, at a Richmond hospital, after a long illness. He was born in Nottoway County, Va., forty-two years ago and studied medicine at Maryland Medical College, Baltimore, from which he graduated in 1910. During the World War, he served in the medical corps, being stationed for sometime at Camp Meade. He was a Mason and a member of the American Legion. He was at one time a member of the Medical Society of Virginia. His wife survives him.

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 52, No. 4.
WHOLE No. 877.

RICHMOND, VA., JULY, 1925

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Original Communications

OUR MEDICAL SOCIETIES. THE COUNTY AND DISTRICT SOCIETY, A WONDERFUL AID TO THE COUNTRY PHYSICIAN IN HIS POST-COLLEGE WORK AS WELL AS TO THE STATE AND NATIONAL ASSOCIATION.*

By D. M. KIPPS, M. D., Front Royal, Va.

This is indeed a very strange world in which we are living. There are those who are worthy and are seeking honors which they frequently do not get, and there are those who are unworthy, do not seek honors, and yet have honors thrust upon them as it were. Such is my condition. I do not feel that I am entitled to the great honor you have conferred upon me. However, I am none the less appreciative, and want to thank the Nominating Committee and the members of this Society for this great honor.

In this wonderfully progressive age in which we are living when medicine and surgery are making such gigantic strides, it is high time for us to get busy and join the procession. It is a very difficult matter for a man to accomplish very much alone. What we need is team-work, co-operation and organization. Just when, where, and by whom, the first county medical society was organized I do not know, but in a general way we know that the oldest county societies in the United States are those of New Jersey, some of the New England States, Virginia, and South Carolina, but I have not specific information as to the dates of organization of all these states. The New Jersey Medical Society was the first state association organized in this country, and this society is now nearly one hundred and fifty-nine years old, having been organized in 1766. It had a period of inactivity, however, so that Massachusetts now claims the distinction of having the oldest state society in point of continuous operation. It was organized in 1781. Connecticut was organized in 1792 and Mary-

land in 1812. Vermont and Delaware also have societies that are considerably more than one hundred years old. The American Medical Association was organized in 1847 and re-organized in 1901.

The county medical society is the nucleus of all medical organizations. Every man in the State has an opportunity to become a member of a county society, and it is his duty to take advantage of this opportunity. The idea of the county society as the basic unit of medical organization has never taken root in Virginia as it has in all of the other states except Massachusetts. Massachusetts, the next oldest state association in the country in point of time of organization, and actually the oldest in so far as continuous operation is concerned, was organized on the district basis and that plan has continued in operation up to the present time. In all other states, the county society is the basic unit of organization, but as stated above this plan has never been completely carried out in Virginia. I believe it is generally conceded that the county society is the logical basic unit and the success that has attended organization on this plan in practically all of the states, seems to show that our present general scheme of organization is the correct one. While the district medical society is a powerful aid in maintaining the efficiency of medical organization, I do not believe that the county society should be abolished for that reason. When it comes to matters of local interest, the settlement of questions arising between individual physicians who are associated one with the other in every day work in a single county, organizational discipline, and other matters of this kind, the county society seems to be a necessary agency. Under our present scheme of organization the county society is the sole arbiter of its own membership. This seems to be a thoroughly democratic provision and one which should be conserved.

The constitution and by-laws of every state medical association, I think, provides for organization and operation of district societies. In New York, Pennsylvania, Ohio and other

*President's address before the Medical Association of the Valley of Virginia, at its meeting in Clifton Forge, June 4, 1925.

states, district societies are working to splendid advantage. They are not intended to supplant, but to supplement the county societies. These district associations play an important part in the organization of the profession in the state and can be made helpful not only by offering opportunity for larger gatherings of members and better programs, but they can be made a powerful stimulus for the improvement of its individual members, and also of medical organization in the individual counties.

At the 1913 meeting of the Medical Society of Virginia changes were made in the constitution and by-laws, whereby it became necessary for the various counties in the state to organize county societies. Under our new constitution the council shall have authority to organize a medical society in every county in the state in which there exists no component society. Dr. Southgate Leigh, who was president of our state society in 1913, made strenuous efforts to establish a county society in each county in the State. In December, 1914, in a paper read before the Southside Medical Association at Petersburg, Va., Dr. Leigh stated: "At the last meeting of our State Society our Committee reported briefly as follows: Number of societies granted charters forty-seven. Number of counties combined with others seven, making a total of counties chartered fifty-four. Counties organized or in process of organization twenty-three, making a total of seventy-seven, leaving only twenty-three counties not looked after. Number of new members added to the State Society chiefly through the component county societies about 300." Now after a lapse of ten years or more, according to the American Medical Association Bulletin, June, 1924, we have thirty-two component societies. Number of counties not organized forty-three, which would leave twenty-five that are combined with the other societies. It would seem too many of our county societies are inactive, moribund, existing in name only. According to the constitution and by-laws of our State Society the Council is held responsible for this condition. Councilors are supposed to visit the societies in their respective districts at least once a year. I wonder how many do so? Councilors, as I understand it, are supposed to inquire into the condition of the profession, to organize component societies where none exists, to be

peacemakers, censors, and to improve the zeal of county societies. The Councilor can help materially in securing better programs for the county societies in his district, if he will attend their meetings once in a while. His very presence is a stimulus to the men to do better work. The State Council is the body of foremost importance in our organization scheme, and if the Council would function as intended by the by-laws of our State Society, within one year we would have a component society in every county in the State. Is this expecting too much? Let us see what some of our sister states are doing. Alabama has sixty-seven counties in the State and sixty-seven component societies. Connecticut has eight counties and eight component societies. Delaware has three counties and three component societies. Iowa has ninety-nine counties and ninety-seven component societies. There are no counties in the State not organized, so I take it two counties are combined with other counties. Kentucky has 120 counties in the State and 110 component county societies, only ten counties in the state not organized. Maine has sixteen counties and fifteen component county societies. Only one county in the State is not organized. Maryland has twenty-three counties and twenty-one component county societies, and only one county not organized. New Hampshire has ten counties in the State and ten component societies. New Jersey has twenty-one counties in the State, and twenty-one component societies. New York has sixty-two counties in the State and sixty component societies, only one county in the State not organized. There are some other States that compare favorably with those just mentioned. Virginia has 100 counties and according to tabulation prepared from answers to questionnaire sent out by the efficient Secretary of our State Society, we have fifty-one component societies, nine societies representing twenty-seven counties, making sixty-nine counties reported as having received charters. Eleven counties claim charters, but do not find dates of receiving them. Three counties are referred to in some place as chartered but date is not known. As there is some doubt about these fourteen counties, I do not think we can count them. Only two societies have received charters since 1915. A good many of the societies that have received charters are inactive and are in a moribund condition.

Gentlemen, this is not a very creditable showing for our State. It is to be hoped that our Council will get busy and organize a component society in every county in the State where none exists, and reorganize or rejuvenate those that are inactive and that exist in name only. I do not see how any country physician can keep himself abreast of the times without the stimulus that comes from attending our medical society meetings. The average country physician is loath to read a paper or to take part in the discussion of a paper before our State Society, or even before our larger district societies, unless he is a member and has had some training in his county society. Usually the physicians in a county are well acquainted with each other and in the county society meetings do not become embarrassed, but feel perfectly at home with their colleagues in the reading of papers and the discussions that follow. These county society meetings stimulate members to do better work and cause them to have more confidence in themselves. The man who stays at home and does not attend his society meetings but depends on his own individual experience and the reading of text-books and medical journals for his improvement, will soon find that his work is becoming more and more monotonous and will get into a rut where he ceases to make any improvement unless he gets out among his colleagues and sees what they are doing. I repeat what I said in the beginning of this paper. What we all need is team-work, co-operation and organization.

SOME OBSERVATIONS ON LATERAL SINUS THROMBOSIS.*

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Proper appreciation of the courtesy extended by your Society can only be expressed in the effort to present from research or experience something of real practical value, and this title has been selected from the somewhat unique position it holds among the well-beaten paths of otolaryngologic study. Tonsillar pathology, sinus technique, laryngeal neoplasm, and mastoid variation, have been most generously, well-nigh exhaustively, treated, and conclusions reached of comparative uniformity. These familiar grounds avoid mo-

notony only in the sympathetic accord with one's personal success or failure.

Sinus phlebitis and thrombosis have indeed no paucity of literature and research, but their obscurity and variation are intensely stimulating. The more one studies their occult manifestations, the deeper he is drawn into embryologic, physiologic, and pathologic speculation. The suggestion is ventured, that tucked away in the case recollection of each operator in this field are not a few post-mortem regrets hovering around the term — lateral sinus thrombosis.

It is not the purpose here to fatigue with exhaustive review of the literature (which should include in this country the splendid contributions of Barnhill, Day, Lillie, Phillips, Tobey, Smith, and many others), or extended case report, save in one special instance, hitherto unreported, details of which will be reserved for the close of the paper. It will better satisfy the title to discuss the general background and some of the unconventional types which have occurred in recent months. The test in this field lies in its frequent surprises—Mason's words are trite, "never prescribe for earache over the telephone."

It is perhaps of basic importance, as Randall suggested in a recent meeting, to differentiate the terms thrombosis and phlebitis, the former of which means the definite deposit and organization of fibrin clot, subject to embolic detachment and distant deposit, and the latter, toxic inflammation of the vessel wall, perhaps the only condition present in a large percentage of perisinus abscess cases which do not require resection of the sinus wall, and which recover with sufficiently prompt surgical drainage, even with premonitory meningeal symptoms.

The embryology and anatomy of this area are interesting. The early anterior, middle, and posterior plexuses of cerebral veins, draining into the median vein of the head (which is an extension forward of the anterior cardinal vein) by anastomosis and atrophy, following the development of the otic capsule, coalesce to form the large lateral sinus trunk, conveying outward and downward in each sigmoid groove close to the developing internal ear and later the mastoid cells, the right draining apparently from the superior longitudinal (sagittal) and the left from the occipital vein and the inferior longitudinal via the straight sinus.

*Read before the Virginia Society of Otolaryngology and Ophthalmology, at Winchester, Va., May 7, 1925.

These great collecting sinuses, before entering the jugular foramen, pass close to the mastoid group, as shown in the sectioned specimens, averaging but half an inch distance from the supra-meatal spine. Again, at birth, as pointed out by Dunbar Roy, quoting Toynbee, the position of bone forming the fossa auditoria is but half or three-quarters of a line in thickness—membranous meatus on one side, dura of middle fossa on the other. In a word, this slowly eddying venous current passes in dangerous proximity to the peculiarly vulnerable area of infection, the human ear, and furthermore the ear has but comparatively little automatic resistance to its external, pharyngeal, and lymphatic exposure. Then again, as if to enhance this danger, various emissary veins appear—sagittal, mastoid, condyloid, etc., linking sinuses to extra cranial surface.

The pathologic process involved may be very simple or very obscure—simple, if markedly diseased mastoid cells are in close proximity to sigmoid walls, obscure when all primary mastoid symptoms have disappeared for a considerable period of time, with only slight latent canal discharge. The natural course of infection would seem to be, by direct extension from diseased mastoid, directly through the internal table.

Many authorities quote direct infection from the tympanic cavity and external canal to the jugular bulb, even primary infection of the jugular bulb. Phillips classifies these avenues in his conclusion:

- (a) Dehiscences in the parietal wall.
- (b) Direct extension of active purulent bone lesion.
- (c) Through involvement of smaller veins or intermediate anastomotic veins (but he also quotes Boenninghaus' statement that infection may occur from within the labyrinth directly to the bulb).

G. A. Moore quotes the enumeration of Adami as to the causes of sinus thrombosis:

- (1) Slowing up or stagnation of blood.
- (2) Eddying of blood (Von Recklinghausen).
- (3) Hemolysis.
- (4) Bacteria and their products.
- (5) Disease and injury of vessel wall.

It is on the side of diagnosis that one's major difficulty occurs, and this is, by its very nature, a physiologic problem, or at least the interpretation of alterations in the physiologic

side of thrombosis pathology. Assuming that infection has taken place, penetrated to the endothelial lining, formed a "white wall thrombus," or changed by admixture of blood clot to "red" thrombus, how shall this be recognized?

Conventionally, this should be revealed by chill, rise of temperature to 103, -4, or -5, with proportionate increase in pulse rate, sudden cessation of all symptoms, return again in twelve to thirty-six hours to former height, increase of local symptomatology—pain parietal, post auricular, or below tip—tenderness over tip or below, pain on pressure over emissary exit, with, quite likely, actual swelling, and extending to jugular vein; thickened, doughy feeling along its course, head often held toward affected side, with suggested relation to condyloid veins; mentality strangely clear, ocular report occasionally of choked disc from involvement of ophthalmic vein, blood stream showing active bacteremia, but sometimes not; leucocyte count and polynuclears both increased. Patient seems more ill than could actually be accounted for by associated or previous mastoid symptoms. This will perhaps be accepted as the conventional picture.

Unfortunately, none of the cases in the writer's recent experience has conformed in any material degree to this outline, and this will be emphasized in the cases to be later cited. They even failed to present any of the more unusual symptoms presented by various authors, laryngeal paralysis from thrombic pressure, stethoscopic bruit from jugular vein, oedema of lids, exophthalmos, etc.

As the purpose of this paper was definitely to discuss these variations, it might be pertinent to omit further considerations of the general problem.

THE BLOOD STREAM INFECTION

The primary steps in examination, after properly regulating the hospital care and arrangements for comfort of patient, would naturally be blood culture and X-ray examination. As the X-ray examination under present methods still gives some uncertainty in differentiation, the blood examination assumes first place in position of importance. This should be done immediately, on suspicion of thrombosis possibility, and repeated. Time is an important factor here, and this should have

the same precedence that one gives the tuning fork tests in analysis of deafness. In the two most serious of the cases presented here, in both of which the jugular vein was resected, one had a pure hemolytic strain; the other, in spite of repeated tests, had no growth, save some slight contamination of unimportant organisms.

This statement, however, in no way depreciates the importance of immediate blood culture. If one suspects a blood stream infection, the culture should have its time period for growth, while other symptoms are being determined. The probable positive report, by consensus of opinion, would be streptococcus, though typhoid and other types have been reported.

THE BLOOD CELL EXAMINATION

It is disquieting to believe that a high leucocyte should be present in thrombosis, and then fail to get above from four to six thousand leucocytes in repeated examinations, yet such was the fact in case reported at the Triological meeting last summer. A search of recorded examinations has, however, revealed that this is often the case. One is much relieved to read Sondern's report in "Laboratory Aids to Otologic Diagnosis," that inflammatory lesions confined to cellular bone structures do not show as high leucocytosis or relative polynucleosis as noted when soft parts are involved. He also finds that pyogenic infections mixed with tuberculosis, typhoid, or measles, or following these diseases, have relatively low figures. Smith, quoted by Moore, claims that with chill and sudden rise in temperature, W. B. C. 30,000 or more, suspect pneumonia; 20,000, suspect meningitis or erysipelas; 10,000 to 12,000, sinus thrombosis. At all events, low W. B. C. count has seemed the rule in some very definite cases of thrombosis. The resistance line curve, as suggested by Sondern, would seem most important. This is made up by joining the leucocyte total above 10,000 for each corresponding part of the day to the neutrophile register, then comparing in curve the daily position of these base lines.

CONFUSION OF OTHER CONCURRENT OR SECONDARY DISEASES

In the case reported by the writer in 1924, expert medical advice diagnosed typhoid, and the case was moved to the medical wards, prior

to the final decision operatively to explore the lateral sinus.

This is especially confusing, if lower splenic information also confirms typhoid picture. If thrombus, in course of breaking down, releases infective emboli, involvements of pulmonary areas, spleen, kidneys, and apparent joint metastases, these may entirely blind one to the prior possibilities of lateral sinus involvement. Again the thrombotic clot, even after contributing to a bacteremia, may become walled off with plugs of fibrin at either end of the sinus, these continuing sterile, while the central portion in the sinus cavity remains infectively active. Friedenwald has presented a splendid study of these obliterating efforts of nature. As an interesting complication in the case cited below, there developed an acute endocarditis either with, or shortly following, a large perisinus abscess.

INSTRUCTIVE POINTS FROM RECENT CASES

Case 1.—James D., twelve years of age, admitted to the University Hospital, Philadelphia, in Dr. Randall's Service. This case has been fully reported and can be studied in reprint. Simply three points in the summary will be quoted here.



X-Ray of Mastoid. James D., 1923. Lateral sinus thrombosis. Left sigmoid apparently blocked.

a. Irregularities in infective evidence, but subsidence of mastoid symptoms.

b. Persistent low leucocyte count and pressure of associated medical opinion that the case was typhoidal.

c. Remarkable response to blood transfusion in the presence of profound bacteremia.

Case 2.—Alfred D., age fifteen, admitted to Mary Drexel Children's Hospital, March 16, 1924.

Patient had irregular mastoid symptoms for three weeks before operation. Repeated paracentesis did not relieve. Mastoid evidence very slight; sinus symptoms not conventional; leu-

cocyte count the day before operation only 8,200; polynuclear 71; mastoid X-ray, dense shadow over mastoid area; operation disclosed perisinus abscess and small amount of pus.

Case 3.—John M., age eight, admitted to Dr. Fetterolf's service in University Hospital March 2, 1925. Fulminating mastoiditis. X-ray examination will be demonstrated in slide. This case presented two points of special in-

terest. Operation on the mastoid presented the ordinary condition. Posterior wall had a suspicious pallor, suggested by the resident assistant. Search was continued, and suddenly three or more drachms of pus burst out from around sigmoid portion of sinus, filling the mastoid wound. Sinus pulsated; exposed area showed whitish wall; thrombic appearance; was not opened.

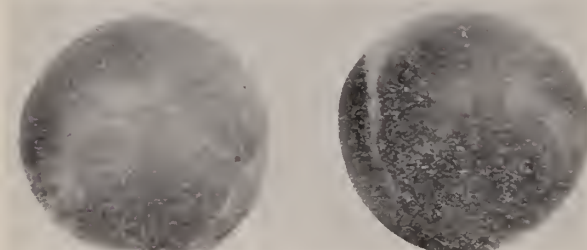
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X-Ray of Mastoid. John M., 1925. Perisinus abscess.
Plate shows mastoid emissary.

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and was probed cautiously nearly to the position of the 4th ventricle.

For the next two weeks the boy did not do well; temperature was high, nystagmus and fibrillary movements of the left side developed, there was increase in vomiting, projectile type, neck was rigid, and patient was irritable. On September 3rd temperature dropped to nearly normal for brief periods, but was 105° again by September 8th.

The wound was carefully washed and drained with Dakin, or mercurochrome solution. On September 10th, the 25th day of disease, temperature dropped to normal, and continued so for approximately six days, running up again on September 16th to the neighbourhood of 102°, with very variable chart line, reaching 104° on September 22nd.

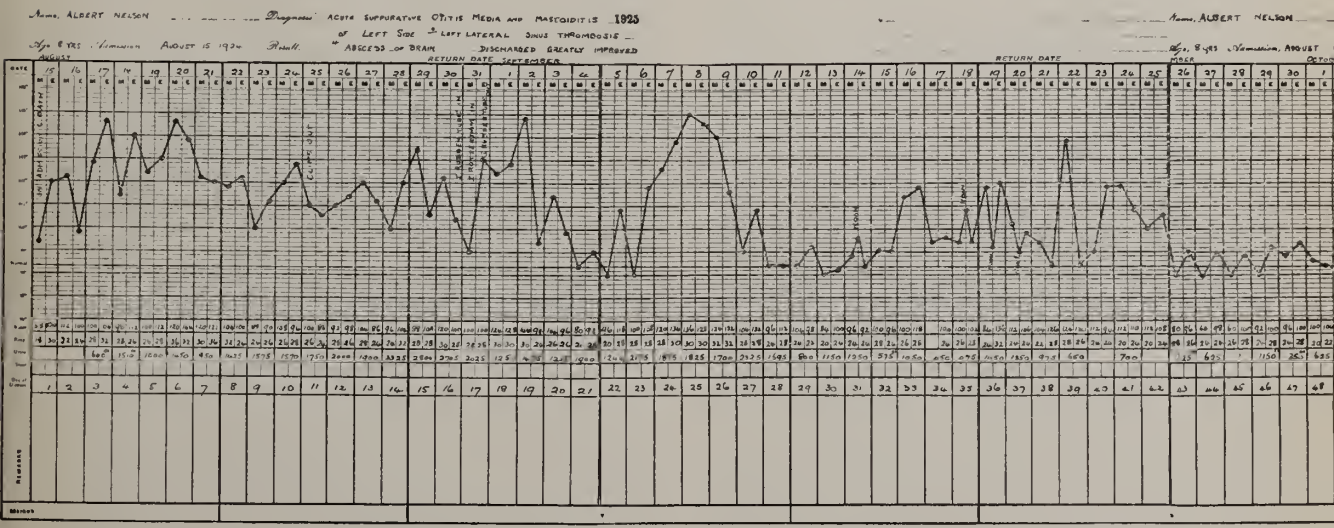
On September 23rd everything went wrong; patient weak and irritable, nystagmus and fibrillary contractions active, projectile vomiting all day. After consultation with Dr. Edmund Piper, it was decided to give 10 c.c. of mercurochrome intravenously. This was empirical, as no positive blood culture could be obtained. It was done simply as a last resort. Immediately the child appeared improved, rested that night, and next day was able to take food again. In three days, by September 26th, temperature dropped to normal line and has practically stayed there to this day. Save for occasional intermittent pulse everything went with uniformity, and the patient was discharged on March 8, 1925.

He was continued under observation, wound dressed, and out-patient life prescribed.

On Friday, May 1st, his mother brought him to my office a hearty boy. Practically all rigidity and ataxia had disappeared. This boy was clearly saved by three things: prompt and complete mastoidectomy, and drainage of sigmoid sinus; careful watching by the hospital corps; and the injection of mercurochrome. His mastoid area with its crucial incision had apparently completely healed. He attends school, joins with other boys in his play, and, was literally snatched from the grave.

CONCLUSIONS

1. Lateral sinus thrombosis or phlebitis is more often antecedent to systemic infective disease than is ordinarily supposed.
2. Exploration of the sinus is indicated in the absence of positive blood culture, when ear history and other symptomatology point to this focus.
3. Leucocyte count is too variable an index in sinus infection to be of great value.
4. Persistent low grade mastoiditis will frequently reveal a perisinus abscess.
5. Blood transfusion and mercurochrome injection in selected cases have demonstrated their efficiency.
6. Blood culture and X-ray study should be primary procedures in suspected sinus infection.
7. The sigmoid sinus area is too frequently overlooked in the elimination of infection foci.



8. The variation in lesion resultant from basal sinus infection should urge a more frequent postmortem exploration in obscure fatality.

9. The response to appropriate sinus surgery is surprisingly favorable.

10. Modern bronchoscopic and radiographic study of the chest has marvellously changed the pulmonary picture. In the same parallel, further research and study of nature's obliterate efforts in the lateral sinus area may completely change its varying status in focal importance.

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HEART LESIONS.*

By JOHN W. PRESTON, M. D., Roanoke, Va.

In assigning me a subject of so broad a scope as the title implies, I take it that it is the thought of your Committee that a discussion of a decidedly practical turn best suits the occasion.

That diseases of the circulation merit intensive study is attested by the fact that facing the falling death rate of other maladies, that of heart disease is rising, and at the present moment it is responsible for the greatest number of deaths and disabilities of any in the registration area of the United States.

Of all the vital organs the heart is most amenable to interrogation. It is near the surface of the chest, so that its area and pulsations may be studied by the eye, the hand, and the stethoscope; and the load which it carries

may be estimated by blood pressure. It is the one organ in the diagnosis and treatment of which the work of the observant general practitioner may approximate that of the specialist.

A word as to the examination of the cardiac patient as a whole may not be amiss. As medical experience grows, we are coming more to recognize the importance both of the general physiognomy of an individual, and likewise his hereditary tendencies as related to his functions and pathology. In this connection, in the matter of neuroses of the heart we are coming to note more carefully the asthenic, or, if one please, the enteroptotic type, carrying with it the long, lean, poorly knit, loosely jointed body, so well described in a recent article by Abt¹ who quotes Dickinson to the effect that one individual born in every five is of this type. From among these, aside from the neuroses, the greater number of rheumatics develop, which latter disease is held responsible for 60 per cent of crippled hearts. The troubles of this group come in the hey-day of youth when the tender tonsil is over-worked in its combat with the invading organisms of the upper respiratory tract; when the deciduous teeth decay and abscess; and the facial sinuses become clogged and are over-looked, but too often, for the reason that we forget that such a thing exists in a child.

Over against the asthenic type is set the plethoric red-blooded individual, who dines not wisely but well; who does not know an ache or pain till with on-coming middle life he puts on a load of flesh and forgets how to play, and in whose blood-vessels unexcreted poisons run riot.

Falling between the two is the over-worked and much worried individual who, like Cassius, thinks much and lies awake at night; into whose vessels and heart the corroding canker of care burrows deep, and whose malady is but too often labelled with the all inclusive term of "indigestion."

To be more specific as to the heart itself. It is of exceeding interest to note our changing evaluation of murmurs. In substantiation of this, I cannot do better than quote from the Surgeon General's Manual of 1917, in which the statement is made that "given a heart of normal size, and responding normally to effort, any murmur that is heard should be construed as accidental and insignificant unless it can be positively determined that it is a mitral or

*Read as part of symposium on the Heart before the South-western Virginia Medical Society, at Pulaski, Va., March 26-27, 1925.

aortic diastolic murmur." In other words, all systolic murmurs in a heart, whose area is normal, may be considered innocent until proven guilty by the incriminating evidence of abnormal behavior.

It is perhaps in the matter of determining the heart area that most of us encounter difficulty. The one greatest aid in the average case can safely be said to be the position of the apex beat, which, if well inside the nipple line, can with confidence be considered normal. It may here be well to stress the greater accuracy by which the position of the apex beat may be determined by locating it between the tips of the thumb and index finger.

In the matter of percussing out the area, I am exceedingly doubtful if in practical work much is to be gained by the effort to differentiate between deep and superficial cardiac dulness, as is advised by some text-books. If one can surely make out that lung resonance on the left reaches well to the cardiac side of the nipple line, and that no cardiac dulness extends to the right side of the sternum, I believe he does well, certainly in the female and in those with thick chest walls. It is in these latter that the fluoroscope, if available, is serviceable.

The irregular heart and the rapid pulsating heart particularly merit study on account of the varying causes. In the asthenic type, above referred to, these vagaries come as a natural sequence of disturbed nerve equilibrium. Yet the consideration of the disordered heart beat brings with it a recurring puzzle in the day's work. Its study with recording instruments is fascinating, but for our present purpose practical observations best suffice.

In the matter of the irregular heart, the one chief responsibility resting upon the practitioner is to differentiate the ordinary extrasystoles, or, if one please, the premature beat, from the irregularity incident to auricular fibrillation. In the former, it may be said that the greatest aid is the simple observation that the dropped pulsation, or extra pulsation, occurs with some regularity of sequence. For instance, if the number of irregular beats be counted per minute they will be found to run approximately the same number. On the contrary, in fibrillation the one notable thing is the *irregular irregularity*, if one may so express it, both in the count of the pulsations and in their strength.

Perhaps in diagnosing fibrillation the one best aid is to remember that a heart whose rate as counted at the apex is found less than a hundred, may fibrillate, but it rarely does so; and that a fibrillating heart is usually made worse on exercise, a functional irregularity often steadying.

One cannot insist too strongly that the thyroid and the digestive organs be carefully investigated in connection with every case of disturbed heart action; and that foci of infections be excluded, not always perhaps as affecting the heart directly, but for the indirect effect through the autonomic nervous system.

Perhaps one cannot do better in the above connection than to stress the fact that in almost every cardiac disorder, whether functional or pathological, there is mental stress, oftener in reality greater in the functional than in the pathological. Conversely, the statistics of the British Army² show that during the World War practically all soldiers sent to psychopathic hospitals had cardiac complaints. Out of 1,000 cases studied, 76.8 per cent had cardiac pain, and 67.5 per cent suffered from breathlessness. In this there should certainly be a lesson touching the demeanor of a practitioner toward his cardiac patient.

The differentiation of cardiac pain due to functional and to organic causes cannot be made by rule of thumb. "Heartache" in the normal heart is certainly something more than an idiom of our language, and it is no easy task to pick out from the mass of such sufferers, the distressed, care-worn woman, or the overworked business or professional man, for whom can one with assurance prescribe increased exercise, and with positiveness state that there is no pathology—a prescription, in such a case, of more potency than all the drugs in the pharmacopeia.

In further reference to anginas, it cannot be too strongly impressed that the day and time has passed when all can be classed together; and, further, that each case merits careful individual study. How, for instance, may the one be due to the toxins of focal infection; another be of syphilitic origin; another the result of excessive use of tobacco (though perhaps rarely); and still another to cardiac overstrain secondary to high blood pressure and faulty habits of living. Incidentally, it may be well for us to remind ourselves that patients suffering from high blood pressure, who are

not frankly nephritics, and who escape cerebral hemorrhage, as a rule pass on to cardiac decompensation, with its numerous complications.

The role of the heart muscle is of the greatest importance of all in cardiac pathology. Even in frank valvular lesions it is not a question so much of how great is the leakage as it is one of how much reserve has the muscle, and how much scar tissue there is in the muscle. It may, therefore, be said that the crux of the whole matter and the final test is the evaluation of the muscle, and its blood supply, which latter goes hand in hand with muscle function.

In the matter of instrumental aids, while one gladly accepts all the help that can be had from the spirometer, the polygraph, the electrocardiograph and the X-ray, no instrument has yet been devised that can measure with a degree of accuracy the efficiency of the blood supply of the heart, and the stamina of the muscle. In the last analysis, it may be said that these things may best be determined by whether one tires too easily, and whether upon standing there is edema of the ankles, whether there is shortness of breath or distress upon hopping a given number of steps or upon climbing one, two or three flights of stairs. Accessory evidence is the cardiac area, determined as above indicated, and whether or not there is a tendency to fibrillation. Not content with these things, Pratt has well said in relation to the heart: "In diagnosis of heart disease consider not physical signs alone or signs combined with symptoms, or the response of the heart to exercise, for these are not sufficient, but consider the whole man, body and soul together."

Reverting, in conclusion, to the statement made in the beginning touching the alarming increase of cardiac deaths, may I not plead with each physician to do what he can to stem the tide and promote prophylaxis not only by a redoubled effort to prevent foci of infections, but that he become even more insistent in the care and hygiene of the asthenic child, and that he more assiduously warn those approaching middle life of the dangers of over-feeding, of over-weight, and of little exercise.

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Anchor Building.

TREATMENT OF ANTERIOR POLIOMYELITIS.

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Introduction. The subject of this, my first paper before the Clinico-Pathological Society, was selected because it was felt to be one in which everyone of us is interested, especially as regards the early treatment. No claim is laid to much that is original in these pages, but an attempt has been made to combine the knowledge gained in my private practice and the clinics of the Children's Hospital with the more recent findings of men in this country and abroad, as expressed in the latest literature. A clear discussion of the treatment of any disease is always aided by refreshing our minds as to the pathology, symptoms, and etiology, of the disease under discussion. With this in mind, a brief review will be made touching on the high points in anterior poliomyelitis.

Anterior poliomyelitis, or infantile paralysis, is an acute infectious disease, accompanied, in a majority of cases, by paralysis. The paralysis is incidental and not essential, and may be a weakening or total loss of motor power in certain muscles and groups of muscles, with little or no gross disturbance of sensation. It may be, and often is, widely scattered as to the muscles affected, and is primarily a flaccid paralysis, with reflexes lost or lowered.

Pathology. According to Jones and Lovett, "Infantile paralysis is a general infection, the results of which are most marked in the nervous system, in which at autopsy the meninges are found to be edematous and injected, a slight increase in the amount of cerebrospinal fluid also being present. The brain and cord are edematous, and minute hemorrhages can generally be distinguished.

"The first stage in the pathological process is an acute interstitial meningitis, usually most marked on the anterior surface of the spinal cord. In the cord itself there occurs a hyperemia, and a collection of small round cells in the lymph spaces surrounding the vessels (perivascular infiltration) as a result of which in many places the cells are so numerous that they press on the lumen of the vessels and obstruct the circulation. Minute or extensive hemorrhages occur, and there is extensive edema. The lumbar enlargement of the cord

is most often affected, and the anterior horns more often than the posterior or the white matter, as in the former blood supply is more abundant. Although the process by which the vascular lesions affect the nerve cells is in large measure a mechanical one, it is impossible to exclude the fact that the virus may exert some directly toxic action on these cells. The damaging effects, therefore, are to be attributed (1) to direct pressure on the nerve cells by hemorrhages, edema and exudate, (2) to the anemia following the constriction of the blood vessels, which is probably the most general and important change, and (3) perhaps to a direct toxic action of the virus itself on the nerve cells. On account of this pressure and anemia, the nerve cells may degenerate, yet if the exudate or hemorrhage, or both, are absorbed soon enough the cells may recover function; on the other hand, if the unfavorable conditions have been over-prolonged or excessive, the changes in the nerve cells may go on to complete degeneration. In addition to changes in the spinal cord, it is very important to note that the same sequence of changes are found to a less degree in the brain, medulla, and pons. The posterior root ganglia are practically always involved by lesions similar to those in the cord itself, and in experimental pathology this is the first step in the process. The terminal stage in the pathological changes is represented by the replacement of the motor cells by focal glioses (focal scleroses), due to increase of neuroglia tissue, which are analogous to fibroses and areas of scar tissue in other organs, due to increase of connective tissue. Shrinking occurs in severe cases. The destruction of spinal cells in any center naturally represents a loss of function of those cells, but the inter-communications between the bundles of motor cells and the connections between muscles and the motor centers are so free and so manifold that, unless the destruction has been very extensive, the possibility remains of establishing new connections between other cells and muscles. This fact serves as a basis for muscle training.

"The changes which are found in other organs in severe infantile paralysis are less striking than those in the nervous system, but are practically as constant, and constitute an extensive involvement of the lymphoid tissue and of parenchymatous organs. In the latter,

cloudy swellings are usually met with, not unlike those of typhoid fever.

"In short, it must be remembered that poliomyelitis is a general toxemic process which affects organs throughout the body, but which apparently acts mildly; on the other hand, it is characterized by lesions in the spinal cord which occasionally prove fatal by involvement of the nerve cells controlling respiration or these changes may lead to greater or lesser impairment of motor function in certain of the cells controlling muscular action, most often in the legs. The general tendency toward spontaneous repair in this disease is explained by the pathology, which also shows why partial paralysis is so much more common than total.

"The paralysis at first presents the same appearance, from whichever of the causes mentioned it arises, and may be total or partial. The mildest paralytic changes result from anemia and edema, many of which clear up entirely, and all improve except where these causes have led to necrosis. Hemorrhage causes a more serious grade of motor involvement, but if it has caused only pressure on the cells, and not destruction, recovery may occur. Destruction of motor cells by anemia, hemorrhage, or direct action of the toxin, causes some degree of permanent loss of power in the parts supplied by them."

Symptoms. In mentioning the symptoms no attempt will be made to go into details as to the various types of poliomyelitis, as classified by Wickman and others, except to enumerate these various types. The usual symptoms, as we see the disease, will be gone into a little more fully. Emphasis will be laid on systematic examinations and accurate recording of the objective symptoms, especially the muscle groups involved. Wickman's classification is as follows:

1. Ordinary spinal paralysis, anterior poliomyelitis.
2. Progressive paralysis, usually ascending, less often descending, Landry's paralysis.
3. Bulbar paralysis, polio-encephalitis of pons.
4. Acute encephalitis, giving spastic monoplegia or hemiplegia.
5. Ataxic type.
6. Meningitic type.
7. Polyneuritic (multiple neuritis) type.
8. Abortive type.

Aside from Class 1, the ordinary spinal

paralysis, which is anterior poliomyelitis we commonly see in children, I wish to lay special stress on the last type, and say that I believe many individuals, both children and adults, have the so-called abortive type, or possibly a better term would be a mild type without much paralysis, and these cases are never diagnosed. There is no question but that many of the so-called encephalitic cases can be classed as acute poliomyelitis.

It is remarkable in how many cases, with deformities of more or less severity, it is impossible to fix a definite date as to the onset of the disease. Sometimes the symptoms of the acute stage are so mild as to be entirely overlooked, and the weakening and paralysis are the first symptoms noted. This difficulty in definitely fixing the date of the onset of the disease is not confined to the children of ignorant parents with large families, where acute spells of short duration may be ordinarily overlooked, but is encountered in families of fairly intelligent parents.

There are generally recognized four stages in the symptomatology:

1. The stage of onset.
2. Stationary period.
3. Partial recovery or convalescent stage.
4. Chronic stage.

Aside from the usual symptoms noted in all infectious diseases that vary with the intensity of the infection, symptoms that in many cases lead to diagnosis of rheumatism, influenza, meningitis, and at times even acute osteomyelitis, Platt, of England, calls attention to and lays emphasis on three important symptoms:

1. Stiffness in the neck.
2. Spontaneous pain in the back and limbs.
3. Marked tenderness of the limbs.

Albee calls attention to a skin rash resembling at times measles or scarlatina, purpuric and herpetic in character, that may be mistaken for one of the exanthemata. I have seen this skin condition in several recent cases. Paralysis comes on early in the disease. In many instances it is the first symptom noted by the mother. The reflexes are lost, although very early, and before paralysis ensues, the knee jerks may be exaggerated and later lost when paralysis begins. The paralysis is a flaccid one involving one or more muscles or groups of muscles of the extremities, and the spinal and abdominal groups. Whitman has noted, and it bears out what we find in clinics

here, that the lower extremities are more often involved. His tabulation of the distribution is as follows:

One leg	1,120
Both legs	645
One arm	162
Both arms	33
Leg and arm	222
Three extremities	42
All extremities	194

In the Whitman group the upper arm is more often involved, with persistent paralysis, than the lower, the anterior muscles of the thighs and legs more often than the posterior muscles, and the adductor muscles of the feet more often than the abductor muscles. This fact also bears out my observation of chronic cases seen with hip and knee contractures, and foot held in equino-valgus.

As the acute symptoms of the disease subside, the *stationary period* comes on, in which the most noteworthy clinical factor is the disappearance of pain and tenderness, leaving only the paralysis.

The *convalescent stage* lasts an indefinite period, say from one to six months, or longer. Much of the paralysis during this stage gradually clears up as the congestion and mechanical pressure in the cord disappear, leaving only those muscles paralyzed which are affected by actual cell destruction.

The *chronic stage* may safely be said to begin if, after two years from the initial attack and after intelligent treatment during the preceding stages, the case presents paralysis of certain muscles or groups of muscles. In this stage, especially in neglected cases, we find the deformities and loss of function. I may say here that one of the objects of this paper before the Society is to emphasize the importance of early, intelligent, and persistent observation of these cases, and the early instigation of proper treatment to prevent these deformities in the later stages.

The causes of deformity are:

- a. Force of gravity.
- b. Loss of muscle balance.
- c. Habitual posture.
- d. Functional use.

Most of these factors combine to produce the deformities, but loss of muscle balance is probably the most important factor.

Examination. These patients should be examined without clothing, and the various

muscles involved in the paralysis should be noted and recorded. Lovett lays stress on the gait as important in reaching anatomical diagnosis, and we have found this a valuable aid in arriving at a definite idea as to the cause of the limp in lower limb paralysis. Walking of course can only be employed in those cases that have advanced beyond the acute stage and are in the convalescent period, and then only in cases with some active muscles still present. Too much stress cannot be placed on the nude examination. Much of importance is picked up in this way by observation. Lumbar and abdominal paralysis, and paralysis of the upper arm, which have been previously overlooked in superficial examinations of the extremities, are often thus detected. After noting the limp, and arriving at a definite conclusion, it is a good rule to examine, in order, the upper extremities, beginning with the hand, the elbow, the shoulder, the back, the chest, and abdomen, for signs of paralysis and weakness, then passing on to the hip, knee, ankle and toes. It is not essential to work out the separate muscles, and a very clear idea can be obtained by simply noting the various groups involved, the flexors, extensors, adductors, and abductors of the paralyzed joints, first testing without resistance and then with slight resistance. A full record of these findings is of great help in following out cases through improvement and cure, and also in arriving at definite conclusions as to surgical measures which may be needed to stabilize or improve function.

Treatment may be divided into that for:

1. Acute stage.
2. Prevention of deformity during convalescence.
3. Surgical procedure in chronic stage.

In the acute stage opportunity for early treatment depends, of course, on prompt diagnosis. The principle on which treatment must be based will be determined by a clear understanding of the factors causing the deformities. Lovett cautions against "too much treatment," meaning by this that too early or too vigorous massage is counter-indicated in the early stage. This, I think, we all agree to. I do feel though that we can lay down no hard and fast rule as to the time when massage should be started, or how often it should be given. Each case should be considered individually. As soon as diagnosis is made, these patients should be put at complete rest to protect the

inflamed nerve cells from every form of peripheral stimulus. For this purpose we may use the plaster bed or the Bradford frame. The limbs should be immobilized in certain positions we will note, which will prevent the occurrence of the common contractures. For instance, the thigh should be extended, the leg extended on the thigh, the foot held at right angle, with neither pronation nor supination of the foot. The upper extremities should be kept at rest in abduction, not allowing the weight of the arms to pull on the shoulder. These points are important because the fixed deformities often begin within a few weeks of the onset of the disease. A little later, when the acute symptoms of the disease have subsided, we may begin to tell more definitely the muscles involved in the paralysis. These paralyzed muscles should be put in a position of relaxation. By relaxing the tendons of the paralyzed muscles, we are forestalling early loss of muscle balance, and can thus prevent in a great measure the unopposed muscle pull, which is the main cause of the deformities. For example, we many times see children with the tibial group apparently paralyzed and the foot held in marked valgus deformity. If the case has been untreated, it is difficult to tell whether the tibial group is acting, or whether it has been so stretched by the unopposed muscle pull of the peroneal groups that they cannot function.

Massage is of help in poliomyelitis after the acute tenderness has disappeared. No set time can be fixed as to when massage should be started. I have made it a rule to start light massage fairly early, say four or five weeks after the initial attack, and let tenderness and pain be the guide as to whether it should be kept up. If increase of tenderness is found after massage, it should be discontinued, and instituted later. Too much massage is a rather common error among physiotherapists, and is worse than leaving the patient alone. It only tends to fatigue the muscles, and rather predisposes to atrophy of the affected muscles. It is sometimes a problem to convince the parents that light massage, of twenty minute periods, two or three times a week, is sufficient. Massage, in the mind of the average laymen, is given more credit than it deserves. Do not mistake me, I am a strong advocate of massage, but simply as a means to an end, and with no

idea of restoring muscle power. I quote from Kleen:

"The favorable action of massage on parts affected by infantile paralysis is undoubted, but it must be recognized that it has distinct limitations and that too much must not be expected of it. The proper stroking, kneading and manipulation of an affected limb, placed in a position where affected muscles are relaxed, stimulates the flow of venous blood toward the heart and increases the flow of arterial blood to the limb. It also facilitates the flow of lymph toward the center of the body by mechanical emptying of the lymphates and direct manipulation of the muscles must also in a measure empty them of waste products."

If a trained physiotherapist is not available it is far better to keep the patient at rest in splints, or split cast, and have the joints carried daily through their normal arc of motion, rather than have them unintelligently handled. It is well to remember that massage is benefiting the active muscles in a paralyzed limb, and, in so doing, is having the same effect as functional use, thereby tending to produce or increase deformity, unless supportive measures are used in conjunction with the massage to prevent overbalance of muscle pull. A stretched tendon is an inefficient tendon, and does not respond to the motor impulses, even after nerve power has been restored. I have purposely devoted quite a little space to the acute stage of poliomyelitis, and, if it is borne in mind that the main object of orthopaedic treatment is the prevention of deformity and restoring of function, one can easily understand why this has been done.

I am often asked when treatment should be started. It should be begun as soon as diagnosis has been made, that is, the supportive part of the treatment. Unfortunately, outside of hospital services, many of our cases come to us rather late in the acute stage, and well along in the convalescent stage, with deformity well established from the pull of unopposed muscles, force of gravity, or functional use. To sum up the points in the acute stage of treatment, we should have:

1. Complete rest.
2. Early immobilization.
3. Prevention of muscle pull.
4. Delay of massage until tenderness and pain have disappeared, or until the convalescent stage.

Treatment in Convalescent Stage. During this stage of the disease patience of surgeon and parent should be of the stoutest. Mental attitude of the parents, ability to understand what the surgeon is attempting to do, and whole-hearted co-operation are of the greatest importance. It is in this period that much damage to the patient can be done. Parents are prone to become lax in their vigilance, or, worse still, they are apt to drift into the hands of osteopaths and chiropractors. Constant supervision and checking up should be kept in mind as of the greatest importance. Here too, intelligence or lack of it, in the child, comes in as a help, or a hindrance. A bright hopeful youngster will grasp very readily the idea of muscle training, and will succeed, where the dull child will fail. This applies equally to parents, an intelligent mother being a top sergeant in carrying out instructions. Muscle training will improve function and strengthen weakened muscles that are slowly coming back to normal, but care should be taken not to go to the point of fatigue at each sitting.

Should these cases be allowed to walk? Lovett, in his recent book, is rather inclined to keep the child from weight bearing in lower limb paralysis. He cites, for example, that the right hand recovers more effectively than the left, because of the natural tendency to use the right hand, and that in the legs, the rate of recovery is the same, which he interprets as definitely showing that exercise under proper control is good, but with weight bearing not so good. I can only judge from experience whether or not we should allow weight bearing, and here again enters the personal equation. If patients cannot be kept under observation, as, for instance, patients who live in the country and can only report at irregular intervals, I allow them to walk, with a proper brace to prevent contractures and deformities from overbalance of muscle pull. Such children are going to be allowed to hobble around whether we have interdicted weight bearing or not, and these are the much-deformed patients seen in the chronic stage with changes in the bony structures, due to stretching and contractions of the soft parts. Patients who are under rather constant supervision should not be allowed to walk until well along in the convalescent stage. By keeping them from weight bearing, but allowing exercises and muscle training, we can prevent fatigue and stretch-

ing of weak or paralyzed muscles, and hasten return to normal.

It is in this period of the disease, if back muscles are involved, that great care should be exercised in allowing these children to sit up unsupported. Many of our non-rachitic scoliosis patients, so markedly twisted and deformed, are the result of neglected poliomyelitis backs. Even with supportive casts and jackets these cases are very apt to go on to scoliosis if the muscles do not return to normal. Back paralysis is somewhat different from extremity paralysis, in that the deformity here is directly due to the paralyzed muscles, and not to muscle pull of strong muscles. The convexity is toward the good side. Split casts should always be worn where back muscles are involved, only to be removed for massage and cleansing. The support of the upper extremities on airplane splints, to prevent muscle pull by the weight of the arms, very often prevents subluxation of the shoulder. A suitable splint for the hand, in paralysis of the wrist, is advised, generally a cock-up splint. Before passing on to the treatment of the chronic stage of poliomyelitis, I will conclude the treatment of this stage by emphasizing these points:

1. Close supervision.
2. Intelligent understanding between parents and surgeons, and,
3. Quoting from a recent article by Legg, "emphasis on the evil results of over-fatigue, general exercise treatment without regard for muscle balance; and weight bearing without mechanical support in positions which favor deformity."

Treatment of the Chronic Stage. Massage during this period is of benefit, especially to weakened muscles, and following any operative procedure which may have been done. During this stage fatigue should also be guarded against. Many of our cases, which seem to progress satisfactorily through the acute and convalescent periods, are found, several months later, to have gone back. Muscles that have shown slight twitching, and even those which have been functioning, are seen to relapse to a state of flaccid paralysis. I believe this is brought about in great measure by forcing these children to a point of fatigue. Complete rest and gradual return to activity will often prove effective in restoring muscles to the point reached before relapse.

Braces. Apparatus of various types is most

beneficial in this stage. Apparatus may mean anything from tilted heels and soles for a moderate valgus deformity, to rather cumbersome braces to stabilize flail legs, and allow the patient to indulge in "caliper" walking with crutches. I am not a believer in loading these children down with complicated braces, and they should only be used, made as simple as possible, where no operation can be advised that will prove of benefit. If we are to guard against fatigue, heavy braces are certainly not indicated. Following operations, especially tendon transplantation, some form of apparatus, depending on the individual case, is necessary during convalescence to hold the limb in the position of choice until stability has been established.

Operative Measures. One has only to read the many articles written by orthopaedic surgeons to learn how many different views can be expressed as to the best operation for given conditions. My own personal opinion is that we often lose sight of what any operation will do at best, namely, stabilize and establish muscle balance around a joint. If we attempt to transplant tendons with the idea that these transplants will act in exactly the same manner as the healthy tendon before paralysis, we are often doomed to disappointment. To expect, say, a ten horsepower transplant to do the work of a forty horsepower tendon, and this too in an entirely different direction and angle, is to expect too much. A recent article by Platt brings out many interesting points in this connection. He states that normally tendons of muscles with given strength are inserted in just the right part of the skeleton to overcome counter pull of certain other muscles diametrically opposed. He wisely thinks that in doing our transplants we not only over- or under-estimate the strength of our transplanted tendons, but attach our tendons in such a way that our leverage is poor. Another factor of importance in considering our transplants is our after-treatment. Legg has written a most sane article in a general review of this subject. He says:

"Another point to be considered in determining the operation to be used is the fact that transplantations are bound to fail unless good post-operative treatment is carried out. The transplanted muscle is temporarily weakened by the operation and must have careful massage and exercise to enable it to regain its

strength. It also must be given careful re-education to enable it to take up its new function, for in many cases the mere mechanical change in its new line of pull will not cause it to produce the new action. If the cases are not carefully re-educated, they will not acquire the new function and the success of the operation is lost."

It can readily be seen, therefore, that many of our patients have to be eliminated from consideration of tendon transplantations because of the length of time they have to be kept under observation. In this group come patients living at a distance, and those whose parents will not co-operate in the after-care. No tendon work should be attempted until existing deformity, due to change in bony structures, has been remedied. Time will not permit detailed description of the various tendon operations which have been performed with more or less success, and bear the names of their originators. Some are good, many are not successful, perhaps, because of poor technique, at the hands of disciples. I have used the peroneus longus for the tibialis anticus for overcoming valgus deformity; the insertion of the peroneus longus and tibialis posterior into the os calcis to act for the tendo-Achillis; the use of one of the hamstrings for the paralyzed quadriceps, all with a moderate degree of success; but I cannot say that I am an enthusiastic believer in the universally good results reported from time to time. The use of silk ligaments has not been successful.

To overcome contractures, we resort to gradual stretching and application of casts, or to the more rapid procedure, tenotomies and fasciotomies, with the tendo-Achillis as the most often tentotomized. I am very much of Legg's opinion that open tendon lengthening is the operation of choice if the tendon cannot be manually stretched, rather than subcutaneous tenotomy. I do not believe a surgeon should work blindly when it is so simple to make an incision, judge of the amount of length you want and see exactly what you are doing. Insertion of tendons into bones to act as checks and to stabilize joints has been done with varying results. Most of the difficulty, if these cases are followed up, is due to the stretching of the tendons that have been so used. Gallie's results from *his* operation are probably better than in the hands of other surgeons.

After looking over our records in the office

on cases done by the late Dr. Wm. G. Erving and myself, and noting the results as reported by various writers, I believe the bone operations, including osteotomies, with or without removal of wedges, arthrodesis operations, and for the lower extremities, Whitman's astragalectomy, will, in the great majority of cases, everything taken into consideration, prove more successful in accomplishing functional results. Whitman's astragalectomy, with strict adherence to his technique, especially in displacing the foot backward, has been in our hands the operation of choice for stabilizing the foot.

For flail knee, with good gluteal muscles, arthrodesis of the knee gives good results. We have not been so successful in the few attempts made to stabilize the hip. For flexion contraction of the hip we have used Soutter's operation (transplantation of the hip flexors at the ilium which consists of sub-periosteal stripping down from the ilium of the hip flexors). This operation has been successful in that the patients were made more comfortable. It allowed us to get them about on braces with weight bearing on the formerly flexed leg.

In back and abdominal paralysis, the use of, first, a plaster jacket, and then a more permanent jacket of leather or celluloid, is indicated. Albee's bone graft for fixation of the vertebrae should be considered as logical. It certainly does improve the scoliosis, and has been successfully used by a few American surgeons.

Upper extremity paralysis is somewhat different from lower, in that we do not have to contend with weight bearing. We do have, however, to figure on finer motions, especially as regards the hand. Tendon operations to overcome wrist drop, and transplantations to give use of the thumb, are quite successful. Tendon transplantations of the upper arm, however, are not so successful. In deciding on operations on the upper arm, one important factor must be borne in mind. It is useless to do anything to improve function of the upper arm if the hand is useless, for after all the arm is only a sort of lever to bring the hand into play, and with a flaccid hand an improved arm is worthless.

Arthrodesis of the shoulder for deltoid paralysis, especially if the trapezius is active, is the operation of choice. In thus fixing the shoulder we obtain scapular motion and the

trapezius will act as an abductor of the arm when the patient shrugs the shoulder.

Summary in Treatment of Chronic Cases:

1. Judicial use of braces.
2. Tenotomies and fasciotomies for correction of minor deformities.
3. Osteotomies, arthrodesis operation, and astragalectomy, are the best stabilizing operations.
4. Tendon transplantations in selected cases, used alone or combined with other operations.

I have purposely omitted much of importance from the standpoint of the pediatrician and the general practitioner. The use of electricity in the treatment of poliomyelitis has not been touched on. We have had no experience with electricity and have always thought that massage is much better, as being more easily controlled to prevent fatigue.

Floyd Clark and Andrew G. Daw, of Omaha, in a paper before the Section on Diseases of Children, at the session of the American Medical Association in June, 1924, report six cases of poliomyelitis, diagnosed early before the onset of paralysis, and treated with Rosenow's serum. All of these recovered without paralysis. They lay stress on rigidity of the neck as an important diagnostic sign and caution physicians to have the disease in mind from June to November. I have never used Rosenow's serum. Our cases are seen only after development of the paralysis. I would like to have the opinion of some of the pediatricians on this phase of the treatment.

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INTRACRANIAL HEMORRHAGE IN THE NEW-BORN.*

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The occurrence of intracranial hemorrhage in the new-born is far more frequent than the average physician suspects. In recent years much light has been thrown on the subject of intracranial hemorrhage by various workers, as Holland, Saenger, Sharpe, and others.

Unfortunately, the majority of intracranial hemorrhages occur in a mild form; consequently, they remain unrecognized, survive, and later in life are classified as mental and physical defectives. The severe cases are usually recognized, but their chances to survive are lessened by the severity of the hemorrhage and the late diagnosis. Very few attending

physicians give enough attention to the baby for the first few days of life. Frequent visits are made to the mother, but often the welfare of the baby is taken for granted.

It is my object in this paper to discuss the most generally accepted cause (birth traumatism) of intracranial hemorrhage, and not to elaborate on predisposing or contributory causes from various diseases, such as intoxication, congenital syphilis, hemophilia, prolonged coagulation time, etc.

The tentorium, as you know, is a partition originating from the dura mater, which separates the cerebrum from the cerebellum. The tentorium is the most common site of hemorrhage, according to Holland. The tears may be below or above the tentorium, but are most often below. Furthermore, they may be unilateral or bilateral, complete or incomplete. Holland states that the origin of the hemorrhage is in the tributaries of Galen's veins, received from the mid-brain and cerebellum, also from the cerebellar veins entering the straight sinus. During difficult labor much tension is made on these vessels, they become twisted by marked molding of the infant's head and rupture. Saenger states that the tentorial veins have no muscular or elastic fibres, while the cerebral veins possess that power of contractility and so may check hemorrhage.

The coagulation time is important in intracranial hemorrhage. Greuter found the coagulation time to be prolonged in 75 per cent of fifty-three infants having icterus neonatorum. Sherman, in a series of one hundred infants, found the bleeding time longer than five minutes in twenty-eight cases, and the coagulation was longer than twelve minutes in twelve cases. Cerebral hemorrhage occurred in one case. Coagulation time should be done, if possible, on all cases where there is suspicion or evidence of intracranial hemorrhage, especially if icterus neonatorum is present.

In nine cases of intracranial hemorrhage in the new-born that have come under my observation in the past two years, icterus neonatorum occurred in the majority.

The physical findings vary according to the size and seat of the hemorrhage. Hemorrhage below the tentorium, though of a mild degree, will be of more serious nature than a large hemorrhage above the tentorium. Bleeding below the tentorium produces much disturbance of the respiratory and vasomotor system.

*Read at the March, 1925, meeting of the Alleghany-Bath County Medical Society.

Marked depression and cyanosis are common. Bleeding which occurs above the tentorium cerebri usually causes much crying and screaming, bulging of the fontanel, nervousness, and convulsions.

Causes: Birth traumatism is generally accepted as being the cause of the majority of intracranial hemorrhages in the new-born, either from forceps delivery, rapid delivery from natural means, or artificially as from the use of pituitary extract. Last of all, breech delivery or versions are often the cause of intracranial hemorrhages.

I am not an obstetrician, but I dare to condemn any man who becomes impatient and resorts to artificial means to deliver an infant, without first giving nature a fair chance. I will admit that many infants are injured during normal spontaneous delivery, but undue haste in the use of forceps or pituitrin, and breech or version deliveries are responsible for a great number of serious injuries and even deaths. This procedure is often practiced by capable, well-informed men whose concern for the mother is admirable, but whose unconcern for the child is often tragic.

In eighty-one out of 167 fetuses dying during labor Holland found tears in the dura mater septa. Thirty-five out of the eighty-one were either breech or versions. He further states that 51 per cent of fetal deaths are due to complications of labor, and as a rule are due to hemorrhage. The tentorium cerebri was torn in 88 per cent of the dead fetuses after a normal breech delivery.

Cruikshank's investigations of 200 mature and 200 premature cases are interesting. In a series of 200 mature infants, hemorrhage of greater or less degree was present in 154 cases, or 77 per cent. In fifty-five cases of this number the hemorrhage consisted only of a capillary oozing. Had these been neglected, there would have been a gross hemorrhage in ninety-nine cases, approximately fifty per cent of the series.

Studies were made of 200 premature infants, born during the eighth to ninth lunar month of pregnancy. It was found that in 133 cases hemorrhage was present. In fifty-three of the premature infants, the bleeding did not amount to more than a capillary oozing, so that the gross hemorrhage in premature cases occurred in eighty-one cases, approximately 40 per cent of the whole. He further states that where a

tentorial tear occurred in a mature infant, it was found that in 79 per cent of the cases the labor was abnormally long, while in 9 per cent it was precipitate. Furthermore, in 47 per cent of the mature cases, and 53 per cent of the premature cases where tentorial tears occurred, breech delivery had taken place.

I grant you that forceps and pituitrin in the hands of a competent obstetrician are of great value, but in the hands of a physician who is lacking in either judgment or ability, they are dangerous weapons so far as the life and morbidity of the infant is concerned.

Cerebral hemorrhage is far more frequently seen in breech and version deliveries than in any other common presentation. Haste to deliver the after-coming head by physical force often results in tears of the membrane; consequently, hemorrhage. In my opinion, the physician who practices version does nothing other than raise the infant mortality rate. One of our leading obstetricians in this state practices and advocates versions. It might be of interest to know that his infant mortality in 1921 varied between 12 and 17 per cent.

The diagnosis depends upon a complete history of the case, normal or abnormal labor, signs, symptoms and lumbar punctures. It has been my experience in four cases of intracranial hemorrhage that one lumbar puncture caused practically all the clinical signs and symptoms to disappear within five days. When clear bloody spinal fluid is withdrawn in any case, the hemorrhage is usually fresh. On the other hand, when a real dark bloody spinal fluid is withdrawn, it is indicative of an old hemorrhage. Therefore, an early diagnosis and lumbar puncture is essential as far as the life and morbidity of the infant is concerned.

The symptoms vary according to the location and size of the hemorrhage, also according to an early or late diagnosis. Hemorrhage of the mild form, seen early, is a much more difficult diagnosis than a large hemorrhage seen later.

In the mild form of intracranial hemorrhage, the symptoms and signs may be only slight, such as disinclination to nurse, yawning, or sighing, slow full pulse, nystagmus, normal temperature, drowsiness and shallow respiration. This same form may show signs and symptoms of a greater degree, such as screaming as if in pain, refusing food, marked

restlessness and muscular twitching of various parts of the body.

The severe form of intracranial hemorrhage is much more easily recognized because the signs and symptoms are more pronounced and severe. Marked depression of the respiratory and vasomotor systems is common. Cyanosis, muscular twitching, bulging of the fontanels, Cheyne-Stokes' respiration and rise in temperature are late and dangerous signs.

It is the mild form of intracranial hemorrhage which we most often overlook. Absorption takes place, and many cases survive, improving after the first five or ten days, later becoming normal, and never show any evidence of having had intracranial hemorrhage at birth. A much greater number than the average physician realizes remain normal physically and mentally until they reach the age of six to eight months of life, when the average infant should begin to sit up alone. The mother watches her child with great anxiety, and finally consults her family physician as to why her baby is backward. He will very likely refer her to some pediatrician, neurologist, or orthopedist, for treatment. The diagnosis of intracranial hemorrhage due to birth traumatism comes too late to be of any curative value, a sad state of affairs.

I do not mean to infer that intracranial hemorrhage is responsible for all mentally and physically defective children. I do maintain, however, that intracranial hemorrhage at birth is responsible for a much greater number than we can conceive. According to my records of ten cases past the age of twelve months that have come under my observation in the last two years, the majority were subjects of difficult labor. A history of breech delivery, use of forceps, or pituitrin was obtained.

Sharpe, in a series of 100 consecutive births, found bloody spinal fluid in 9 per cent. Five of these nine births were apparently normal. Likewise did the babies appear to be normal. They did not show any marked signs of intracranial hemorrhage. In four cases almost pure blood was withdrawn.

It is interesting to note that years ago, Little, of London, first stated that cerebral spastic paralysis in children was due to an early meningitis, as well as to an impairment of the nerve tissues, retarding development. Years later his opinion changed, stating that

75 per cent of such cases were due to intracranial hemorrhage at birth.

Treatment consists of repeated lumbar punctures daily, until the spinal fluid appears clear. The amount to be withdrawn at each tap varies according to the condition of the infant, as well as to the character of the fluid. Personally, I withdraw 2 to 10 c.c. Some authorities withdraw as high as 25 c.c. at one time, but I do not advise this. The injection of horse serum, or whole blood should be done in conjunction with lumbar puncture, especially in those cases where icterus neonatorum is present, in order that the coagulation time should be shortened if necessary. Sedatives, such as sodium bromide and chloral hydrate, have been of some value in controlling the nervous symptoms. I usually use five to eight grains of bromide, and two to three grains of chloral, given by rectum in a two ounce mixture of mucilage of acacia through a catheter inserted seven to nine inches. If the infant can swallow, three to five grains of sodium bromide, well diluted in water, will be of value. Morphine should not be given.

REPORT OF CASES

Case 1.—Baby C., seen at 6:30 P. M., four days after birth at home. Premature eight months baby; icterus neonatorum present; temperature 101; refused food; fontanels depressed; pulse full and slow. Respiration rapid and very shallow; depressed and drowsy; cried out at intervals, as if in pain; pronounced muscular twitching of eyes and mouth; cyanosis marked; Cheyne-Stokes' respiration.

Diagnosis of suspected intracranial hemorrhage. Lumbar puncture done and 7 c.c. of almost pure dark bloody spinal fluid withdrawn, not under pressure. Diagnosis confirmed. Nurses stated that muscular twitching began twenty-four hours after birth. Baby died at 10:45 the same evening.

Mother, age twenty-five; primipara; labor began at 1:30 A. M.; delivered at 4:30 A. M.; in labor three hours. Pituitrin given; quantity unknown. Mother appeared to be comfortable on the fourth day after delivery, other than depressed.

Case 2.—Baby H., seen forty-eight hours after birth in hospital; full term infant; temperature 102.2; pulse slow and full; respiration shallow and rapid, 80; jaundice; muscular

twitching left side of body, especially face, eye and arm; muscular tensions prominent; crying at times as if in pain; refused food; meconium stools; urine blood stained; fontanels not bulging; cyanosis only slight.

Diagnosis was suspicious of intracranial hemorrhage. Lumbar punctures done and 9 c.c. dark bloody spinal fluid withdrawn under pressure. Diagnosis confirmed. Crying, muscular twitching and muscular tension disappeared promptly; respiration became slow and deeper. Baby slept for six hours; took nourishment very well; twelve hours later slight muscular twitching of eye and left side of face observed. Second lumbar puncture advised but attending physician objected, thinking it unnecessary since the improvement had already been so marked. Muscular twitching continued for three days, then disappeared. The baby was discharged with the mother ten days later, apparently normal. Today, at the age of eleven months, the child is apparently normal.

Mother, age twenty-four; multipara; lost first baby at birth; cause unknown. Labor began at 10 A. M. and delivered at 10:45 P. M. the same day; normal presentation. One minim doses of pituitrin given every hour for five hours; four minims given before entering delivery room. No lacerations reported. Five minims given to control bleeding.

Case 3.—Baby Mc., seen in hospital twenty-eight hours after birth; full term infant; temperature normal; pulse full and slow; respiration shallow and rapid; marked muscular twitching of eyes and face; screaming as if in pain; refused food; meconium stools; fontanels not bulging; no cyanosis; no jaundice, 10 c.c. dark bloody spinal fluid withdrawn under slight pressure; muscular twitching relaxed; crying ceased; slight muscular twitching of face and eyes continued; second lumbar puncture attempted twenty-four hours later; failed to enter the canal; baby continued to improve; took breast greedily; attending physician objected to third lumbar puncture; muscular twitching of eyes and face continued for seventy-two hours and disappeared. Baby was discharged with mother ten days later, apparently normal. Today the baby is six months of age, normal weight, and appears to be normal physically and mentally in every respect.

Mother, age thirty-two; primipara; normal presentation; labor began late one afternoon, delivered the following afternoon; in labor twenty-four hours; $\frac{1}{2}$ c.c. of pituitrin given every hour for four hours; 1 c.c. given before entering the delivery room; high forceps applied; second degree laceration, repaired. Discharged from hospital ten days later in good condition.

CONCLUSIONS

1. Birth traumatism is the most generally accepted cause of intracranial hemorrhage in the new-born.
2. Tears occur most often in the tentorium.
3. Intracranial hemorrhage occurs more often in breech or version deliveries than in any other common presentation.
4. The mild form of intracranial hemorrhage is most often overlooked.
5. Coagulation time should be done on all cases of suspected intracranial hemorrhage, especially in those cases where icterus neonatorum is present.
6. Lumbar puncture is most valuable from a diagnostic standpoint, as well as a curative procedure.
7. Intracranial hemorrhage is responsible for a greater number of physically and mentally defective children than we can conceive.

Anchor Building.

HEMORRHAGE DURING THE LATTER MONTHS OF PREGNANCY AND LABOR.*

By C. J. ANDREWS, M. D., F. A. C. S., Norfolk, Va.

Perhaps no single symptom or occurrence during the latter months of pregnancy has greater significance than the appearance of hemorrhage. It is caused by one of two conditions—placenta previa or ablatio placenta. These conditions have been giving trouble from time immemorial, but it is interesting to note that Rigby, 1776, clearly described its mode of production, differentiating between hemorrhage due to premature separation of placenta and that due to placenta previa, and designated the former as accidental, and the latter unavoidable hemorrhage. Holmes, of Chicago, 1901, proposed that premature separation of the placenta be designated as abruptio placenta. Although we are more familiar with

*Read before the Southside Virginia Medical Association, in Norfolk, March 10, 1925.

placenta previa. Polak and Williams believe that ablatio placenta is more frequent.

A painless, causeless hemorrhage before delivery is presumably due to placenta previa. So surely is this true that this working diagnosis may be made without an examination; in fact, it is highly desirable that no examination be made until the patient is fully prepared and the operator is ready to proceed with such treatment as is chosen. It is to be remembered that sepsis often follows placenta previa. This has been attributed to the fact that the placental site with open sinuses is closer to the infected vaginal tract. Hasty examination through an unprepared field would be expected to be a more potent cause.

The choice of treatment will depend upon several conditions. Fortunately most of these cases are multipara, and have a fair degree of dilatation when seen. With two or more fingers' dilatation and a living child, the choice would be packing (Polak, McPherson) or bag. If packing is to be used, it must be very thorough, filling the cervix and vagina, in fact, really packing the pelvis. This operation is greatly facilitated by having at hand packing prepared in a glass tube about ten or twelve inches long by two inches wide, large enough to hold a strip of gauze packing two inches wide, four-ply, and ten yards long. The open end of this tube is held over the vulva and the operation performed without touching the packing with the hands. If the bag is chosen, one should be used large enough to make sufficient dilatation to permit delivery. The operator should not leave the patient after the bag is inserted, as violent or fatal hemorrhage may follow its expulsion from the cervix unless the operator is ready to rupture the membranes, or deliver by version or forceps.

Braxton Hicks version is used by many for this type of case, leaving the breech to stop flow and be delivered spontaneously. This gives poor outlook for the baby.

The bag may be placed inside the sac, or extra ovular. The extra ovular application has been, in my hands, very satisfactory in controlling hemorrhages. In some cases rupture of membranes may be all that is needed. If the dilatation is sufficient, immediate delivery by version or forceps may be satisfactory.

If the cervix is rigid and long, the choice is between Cesarean and packing. Cesarean usually offers the best prospects if the patient's

condition is good, and would offer much better chances for the baby.

Transfusion is invaluable in tiding over the tragic cases. In very rare instances the first hemorrhage from placenta previa may be severe or fatal, but in practically all cases the hemorrhage, like the rattlesnake, gives fair warning. There are several small hemorrhages first. If these warnings are not disregarded by the patient or attendant, very few will become tragic.

Premature separation of the placenta, or abruptio placenta, may cause a hemorrhage, which is concealed or external.

Holmes found the hemorrhage to be external in 193 of a series of 306 cases.

Ablatio placenta cases may be conveniently placed in three groups. The first is the traumatic, which is associated with the history of a blow or injury of some kind, and possibly torsion of the uterus. The second is the mildly toxic case with numerous infarcts in the placenta. In both of these the blood collects beneath the placenta until it tunnels its way to the open cervix. The third class is the so-called utero-placental apoplexy. In these cases, not only is the placenta separated from the uterine wall by the bleeding, but the whole uterine wall is infiltrated with blood and the peritoneal cavity contains bloody serum, the uterus presenting a dark appearance. These are associated with severe toxic symptoms.

After an extensive study of this subject, Watson concludes that utero-placental apoplexy is caused by the inundation of the uterine wall with a toxin of the nature of a hemorrhagin liberated from the placenta, and naturally producing its maximum effect at the side of its absorption and greatest concentration. This toxin has been likened to snake venom. The symptoms vary with the different conditions. The first two classes give symptoms of hemorrhage, either concealed or external, pain in the uterus, and rigidity in 20 per cent of cases.

Utero-placental apoplexy gives these, and, in addition, constant board-like rigidity of uterus and symptoms and history of toxemia.

Progressive distention of uterus is common to all. Falling hemoglobin also indicates progress of hemorrhage.

The treatment indicated depends upon the type and severity of the case. The mild cases of the first two classes may be treated by mor-

phine, tight binder, and packing of cervix or use of bag to induce labor, or even rupture of membranes.

If the hemorrhage progresses, hysterotomy with coincident blood transfusion offers the best prospect of relief. The cases of utero-placental apoplexy will usually fall in this class. The uterus contracts poorly, and is even in danger of rupture. Induction of labor does not promise much. Even if the foetus is delivered, the uterus contracts so poorly that hemorrhage often continues.

Hysterotomy not only gives prompt help, but gives opportunity of observing the condition of the uterus. If it has no power of contraction, hysterectomy may be done; otherwise, a classical Cesarean or low flap operation, as may be indicated, will be necessary.

The final result in these cases will depend more upon a prompt diagnosis than upon the method of treatment selected.

The following cases illustrate several types of these conditions:

Case 1.—Primipara, age twenty-two, seven and one-half months pregnant. This patient had very severe vomiting of pregnancy during the early months. Following this there was irregular vaginal bleeding for a week or more. The blood pressure was elevated during the whole pregnancy. At seven and one-half months patient had a sharp hemorrhage, and had evidently lost a pint or more of blood when seen, though bleeding was not very active at this time. Patient was removed to the hospital and, after usual preparation, examination showed placenta partially covering cervix. Os was about two fingers dilated. A No. 5 Voorhees' bag was placed extra ovular, and a two pound weight attached. There was no further bleeding. After about three hours the bag was expelled, the membranes were ruptured, and the head appeared at vulva in about ten minutes, delivery occurring normally. The placenta showed a number of infarcts. The baby's heart was not beating when delivered. The patient had evidently had a toxic separation of placenta, as well as placenta previa. This, with prematurity, accounted for the still-birth.

Case 2.—Primipara, age thirty, full term pregnancy. This patient also had shown some toxic symptoms during the four weeks preceding, such as elevation of blood pressure, small amount of albumin and oedema. The

first hemorrhage was not severe, possibly not more than one-half pint. After patient was removed to the hospital and prepared, she was found to have a rather tight cervix, admitting only one finger. The placenta covered the cervix. The baby's heart sounds were normal. A Cesarean operation was done with satisfactory results. The baby was in good condition.

Case 3.—Patient was seen in consultation. Patient, a primipara, gave the history of recent toxemia. She appeared to be very ill. The abdomen was distended, the uterus board-like and very tender to touch. There had been considerable irregular pain in abdomen for several hours, but no definite contractions. No foetal parts could be palpated, and no heart sounds. There was no external bleeding. The cervix was thick and two fingers dilated. No placenta could be felt with examining hand. A Cesarean was done. The uterus was found to be dark in color. The peritoneal cavity contained much bloody serum. Hysterotomy was done in the usual way, and a dead foetus removed. The placenta was partly detached and separated from the uterine wall by large dark clots. The whole uterine wall was infiltrated with blood. This patient recovered.

Case 4.—Patient, a secundipara, full term. This patient, when first seen, had been bleeding irregularly for about two days, and had irregular labor pains during most of this time. The placenta covered the whole cervix. Bleeding was quite active when examination was made. A No. 5 Voorhees' bag was inserted extra ovular. This controlled the hemorrhage. After about two hours the dilatation was complete. The blood pressure was 110-70, pulse 110, and patient appeared to be in fair condition. A version was done and the baby delivered easily without any further loss of blood.

Unfortunately, just before the completion of delivery the anesthetist announced that the pulse had suddenly stopped. This may have been an anesthetic death, but most likely it was the result of the continued small hemorrhages. If we had properly estimated this loss and given a blood transfusion, the prospects would certainly have been better.

Medical Arts Building.

When you wake up at dawn and can't go to sleep again it's a sure sign it's a holiday.—*Selected.*

THE TREATMENT OF EPIDIDYMITIS BY DIATHERMY.*

By W. W. S. BUTLER, Jr., M. D., Roanoke, Va.

Epididymitis of gonorrhoeal origin is of such frequent occurrence and so nearly always in men in active work, that it becomes of considerable economic importance. In dispensary cases, the incidence is estimated at from 20 to 30 per cent. In diathermy, we have a method which will reduce this loss in time easily by one-half and will produce partial or complete relief of pain at once. Corbus and O'Conner, of Chicago, entitle their article on this subject, "A Specific in Epididymitis." And Walther and Peacock report remarkable results. My own experience in the past few months limited to seventeen cases, has been very satisfactory.

This is essentially a use of heat, and we have a means to apply nature's remedy, "fever," at a definite area deep in the tissue. The heated blood causes absorption of the products of infection, probably by an increased phagocytosis; it relieves congestion and by increased tissue drainage gives marked relief from pain, in addition to the bactericidal effect of heat on the gonococci. The effects of heat, and how it works, need not be discussed.

The faculty of placing heat at a distance, as a lens would focus light, gives this method its value. With two equal sized electrodes in a mass of tissue the hottest point is half-way between them, and as either electrode is reduced in size, the point of maximum heat is brought nearer it. Where a large electrode is used for one pole, the heat is thrown so much nearer the small one that the former is called the indifferent, the latter, the active electrode. For heat used for its bactericidal and stimulative effects, the term medical diathermy is used. The temperature can be satisfactorily estimated by the sensations of the patient, i. e., a current just below the point of discomfort. A hot wire ammeter registers the current but gives only an approximate idea of the temperature, because this depends on the area of distribution of the current and the uniformity in resistance of the medium. If the ordinary direct current were used to produce this heat, the pain at the point of contact would so limit the amount used that no appreciable effect would be gotten. Or, if the usual alternating current were used, it would produce muscular contractions. In 1890, D'Arsonval, of Paris, reported that if a current

be reversed over 3,000 times per second, muscular contractions were diminished, and the following year he passed 3,000 milliamperes through his body without any sensation except that of heat. With the modern machine, using a system of condensers, an alternation as high as a million per second is produced, and, further, by some highly technical device, the volume of current is sustained at this high frequency.

For surgical uses, the active electrode may be reduced to a point causing immediate coagulation; here the term fulguration is used. Between this and the medical diathermy there is a degree of heat which produces necrosis not immediately, but sometime later, allowing nature time to wall off the area to be destroyed. For this the term surgical diathermy is applied.

In addition to the tissue reactions to heat, we have the peculiar susceptibility of the gonococcus to heat. The spontaneous cures following a severe epididymitis or prostatitis, or in acute respiratory infections exemplify this. The organism grows so poorly in artificial media that its ready susceptibility to a slight rise in temperature does not make a fair comparison. Where the infection has been inoculated in the joints of dogs, those joints treated by diathermy contained sterile fluid, while the others showed the living organism. An exposure at 104° F. for six hours, or 108° F. for three minutes, will destroy gonococci where they can be localized in the tissue. A normal epithelial cell will withstand 118° for an hour, though germinal epithelium is said to have very little heat resistance. In infections from mumps and from infected bladders, there is some relief from pain but none of these are included in this series.

The question of possible injury to the gland is a very important one. Sterility in the male of gonorrhoeal origin is due to obstruction of the vas, and in diathermy, by allaying the inflammation and shortening the course of the disease, we lessen the amount of fibrous tissue and consequent obstruction of the vas. The condition in the posterior urethra remains and there is an equal probability of infection of the same or opposite epididymis as before. This occasional recurrence shows that the vas is open, whereas a procedure which allows no recurrences would have a high per cent of sterility. Another possible cause of sterility would be a direct injury of the germinal epi-

*Read before the Southwestern Virginia Medical Society, at Pulaski, Va., March 26-27, 1925.

thelium. C. R. Moore, of Chicago, in his experimental work to determine the effect of heat on the germinal epithelium, reports that water heated to 116° F. for ten minutes produces destructive changes in the germinal epithelium, and that these changes are in direct proportion to the distance from the source of heat. In diathermy, the heat is more evenly distributed through the gland and it hardly seems probable that a destructive change would occur without some pain to the patient. The occurrence of sterility following gonorrhoea is discussed in Cabot's Urology. Of gonorrhoeal patients whose records were obtained for five years, 10 per cent of marriages were sterile, 25 per cent in unilateral epididymitis patients and 41 per cent in those with bilateral epididymitis.

In applying diathermy, I have followed the method recommended by Corbus and O'Conner. They have devised a clamp of fibre which holds the two concave metal electrodes on each side of the testis. The skin is shaved and moistened with 25 per cent glycerin to prevent drying and subsequent heating effect in the skin. A current of 600 to 1,000 milliamperes is used for an hour and is kept just below the point of discomfort, *i. e.*, below being too hot or aching. This method proved more satisfactory than the mesh electrode moistened with lather and wrapped in oil silk.

In a group of fifteen cases there has been relief of pain in every instance for several hours, and improvement has continued from the first treatment. The time under treatment varied from one to four days. In the first man treated, the relief was immediate and he returned to work at once, but on the fourth day he had a recurrence on opposite side. Since the same conditions continue in the posterior urethra, recurrences in the same or opposite side must be expected. Each remaining patient has been advised to avoid active exercise from two to four days. Eight complained of severe pain all of the preceding night, and when seen the following morning, reported such relief that they had a good night's rest. Only one man was treated on the first day of pain and swelling. The symptoms immediately began to improve and no time was lost from work.

This procedure has the advantage that there is no pain while being administered and no harm can be done, and you can almost promise immediate relief of pain in addition to the saving in time.

Shenandoah Life Building.

SYPHILIS OF THE LUNGS—REPORT OF TWO CASES.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

In giving you what is really a report of what I think to be two cases of pulmonary syphilis, I am not going into any exhaustive account of this condition, which can be found in various articles, notably in one published by C. P. Howard in the *American Journal of Syphilis* of January, 1924, which also gives an extensive bibliography. But I am merely going to give you a short introduction and then present two cases for your consideration, feeling that any evidence which can be presented may aid in clarifying this obscure, though quite widely discussed affection.

Before the discovery of the tubercle bacillus by Koch, it was quite usual to make diagnosis of pulmonary syphilis, for what was more natural than to attribute to syphilis a lung condition which accompanied various other manifestations of this disease. But a more general use of the microscope soon showed that most of the cases diagnosed pulmonary syphilis were really due to the tubercle bacillus and writers began to contend that there was no such thing as pulmonary syphilis.

The discovery of the spirochete and of the Wassermann reaction revived the interest in this condition, for it was felt that we could now obtain positive microscopic proof in favor of the syphilitic infection, which would offset the negative proof presented by finding the tubercle bacillus in the sputum. This expectation (expressed by so great a man as Osler) has, however, not been realized for in most cases we have merely found evidence of the presence of the two diseases in one person.

Careful postmortem examinations have nevertheless found undoubted cases of syphilis of the lungs, though even here the differentiation is so difficult that Carrera concludes his article with the statement, "The diagnosis of pulmonary syphilis must be made microscopically." On one hand we have the lesion due to a chronic fibroid tuberculosis and on the other the hypostatic pneumonia and brown induration due to a failing heart, which may itself be the result of a luetic infection, all of which can be easily confused with the lung lesion described as the result of syphilis. With an affection which presents such great difficulties even to the pathologist on postmortem it is not re-

*Read at a meeting of the Norfolk County Medical Society, April 20, 1925.

markable that there are now few clinicians who will dare to make a positive diagnosis of pulmonary syphilis from the symptoms of the patient.

There is indeed nothing especially characteristic in the symptoms given for pulmonary syphilis though H. G. Carter says, "We did note that in advanced lesions symptoms were less severe than would be expected from similar tuberculous lesions." Cough seems to be invariably present in cases with enough pathology to be diagnosed. It is naturally worse in cases accompanied by bronchiectasis and except in this last condition the sputum is scantier than in tuberculosis.

Haemoptysis frequently occurs. Hoarseness and dyspnoea seem more marked than in tuberculosis, while fever seems to run lower and night sweats to be rare. Loss of weight is not constant, but may be marked. You see there is nothing in these symptoms to distinguish such a case from a chronic fibroid tuberculosis.

The physical signs likewise are not characteristic and can be found in both upper and lower lobes. There may be very marked as in the cases reported by C. P. Howard, which showed large gummatous or sclerotic lesions on autopsy, but naturally may be of lesser extent. There also seems to be nothing pathognomonic in the X-ray pictures, though some Roentgenologists, like Watkins, claim to be able to make the diagnosis.

In spite of this, C. P. Howard says there are now over two hundred clinical cases, which are well enough differentiated to be accepted as true cases of pulmonary syphilis. To make this diagnosis, after having excluded lung abscess, bronchiectasis, and a localized empyema, he says that you must have:

- (1). A constantly negative sputum for the tubercle bacillus.
- (2). The presence of the stigmata of a syphilitic infection.
- (3). A markedly positive Wassermann.
- (4). A therapeutic test by anti-syphilitic treatment.

H. G. Carter depends largely on this last for his diagnosis, while Howard's case reports certainly do not show very brilliant results from treatment. He, however, was fortunate (?) enough to get four autopsies, two of which took exhaustive special study to confirm the diagnosis.

The Negro race, which is unusually subject

to both tuberculosis and syphilis, naturally offers a fruitful field in which to make a differential diagnosis. But while we find many cases of lung infection in Negroes with a strongly positive Wassermann, in most of these cases the tubercle bacillus is also to be found and the lung lesions are really the result of the latter. Still we do pick up cases, which after long observation we feel are probably cases of pulmonary syphilis, but this is about as far as the writer has dared go.

Dr. H. G. Carter, of Piedmont Sanatorium, writes me that he has had five such cases in fifteen hundred admissions. I sent him one of these cases, though I failed to diagnose it. So I will present it and one other case to you for your consideration.

The patient, who was first seen at our clinic on April 8, 1924, is a colored woman of thirty-eight, who gives no family history of tuberculosis, but who had nursed a patient with this disease seven or eight years ago. She has had the ordinary childhood diseases and influenza in 1918. She has one living child and has lost one, but gives no history of miscarriages. Her present attack has lasted two months, and she was quite sick at first. She has a cough with thick, white sputum, but has had no haemoptysis. She gets cold easily but has had no night sweats. She has some dyspnoea on exertion and has lost strength. Her appetite is poor and she is frequently nauseated but her bowels are regular. She has lost weight and her temperature when first seen was 99.6 degrees and pulse 80—the highest temperature we have found in this case. Her sputum was negative for tuberculosis; her Wassermann 4 plus. Signs of slight consolidation with numerous moist rales were found over right upper lobe front and back with similar but lesser findings in the left lobe. As the patient desired sanatorium treatment, her application was immediately sent to Piedmont Sanatorium, to which she was admitted about May. She did very well at the Sanatorium where she had a course of salvarsan. Dr. Carter wrote me, "This patient left here on July 3rd, as an improved case. She did not show positive sputum throughout her stay, but did show positive Wassermann. X-ray examination showed a mottling, that is not apparently characteristic of pulmonary tuberculosis." She was referred to Dr. Gill's clinic for anti-syphilitic treatment. On November 11th, she looked and felt well and had

no cough. She was referred for X-ray to Dr. Magruder, who reports as follows: "There is marked peri-bronchial thickening throughout the upper lobes of both lungs, believed to be due to tuberculous infection. There is some fibrosis indicating good resistance. No gross pathology." I sent the films to Dr. Carter, who in turn sent them to Dr. Lawrason Brown, who writes, "It is exceedingly difficult from what I know to make a diagnosis of syphilis of the lung. Mr. Sampson and I went over the series of films, which you sent, a couple of times and we have come to the conclusion that on the right side there was a definite pathological change radiating from the root into the lower half or two-thirds of the lung. This was more pronounced in the first films, as on later films it has somewhat cleared up. The change suggested to us at first that of tuberculosis, but its location and one or two characteristics are such that a non-tuberculous process can not be excluded. There were no changes to be noted on the left side."

Here then we have a case with a positive Wassermann, sputum negative for tuberculosis on repeated examinations who has done very well on anti-syphilitic treatment, but who showed none of the stigmata of visceral syphilis—thus presenting three of the four diagnostic points given by Howard. It certainly looks like a case of pulmonary syphilis and I am extremely thankful to Carter for making the diagnosis for me. I will be very much interested in watching the final outcome in this case for Negro tuberculosis cases, who do well at the Sanatorium, relapse much more frequently than similar white cases, while a case of pulmonary syphilis certainly ought not to do so.

My second case is a very different type who, strange to say, was first seen on the same day as the other case. This patient is a hod carrier of forty-nine, who was born in Portugal. Was referred to the tuberculosis clinic from St. Vincent's clinic by Dr. Morgan as a case of "chronic pharyngitis and tuberculous laryngitis." This man spoke very poor English which, along with marked aphonia, made him give a very unsatisfactory history. There was no family history of tuberculosis and no known contact with it. He likewise did not remember being sick before this attack, which only dated back six weeks. His chief complaint is pain in the neck and throat which kept him from

swallowing any solid food, though his appetite was good. He has a slight cough with white sputum, but gives no history of haemoptysis, of night sweats or of dyspnoea. He has lost strength and flesh but does not know his usual weight. Examination shows an emaciated man, who is very hoarse and almost aphonic, and has a badly ulcerated pharynx, which is considered to be probably due to a double infection with syphilis as well as tuberculosis. Lung examination shows slight dullness with BV breathing and moist rales in both upper and right middle lobes. He was reported as a case of pulmonary and laryngeal tuberculosis with an exceedingly bad prognosis, for he looked as if he would only last a few weeks. His blood gave a 4 plus Wassermann but his sputum was negative for tubercle bacilli. On first examination he weighed 106 lbs., his temperature was 97.6, and pulse 76. His throat was swabbed with 3% formaldehyde in glycerine and he was given Tr. iodine (M III) in a teaspoonful of castor oil three or four times a day.

One week later he only weighs 102 lbs., but his throat looks better; he still can not swallow solid food and liquids regurgitate.

On April 29th, his weight and general condition are the same but his throat looks better and cough is better.

On May 20th, he is able to eat a soft egg, his weight has increased to 103 lbs., and his cough is almost well. He is sent to the venereal disease clinic for salvarsan while the other treatment is continued at our clinic.

On June 3rd, his throat feels better and he now weighs 112 lbs.

On July 8th, he weighs 115 lbs. He has had five injections of salvarsan, his throat is no longer painful and he is no longer hoarse. Physical examination shows some dullness and increased breathing over both upper lobes with some fine rales in left upper. Pharynx is recorded as healing. (The iodine and castor oil was discontinued but had to be started again in two weeks on account of the return of his cough and painful swallowing).

Our notes show that he continued about the same, going up and down till October 24th, when physical examination revealed no moisture in lungs.

On December 6th, he is feeling generally better and swallows pretty well. He is sent to Dr. Magruder for X-ray examination which

is reported as showing, "No X-ray evidence of pathology in lungs or vascular structures."

On December 20th, his last visit to clinic, he weighs 117 lbs., he feels better and swallows better and is able to return to his work. His temperature has never been up to 100 at any visit to our clinic while it has usually been below 99 and his pulse has only once been above 80, going once down to 64.

Whether his lung signs were due to syphilis is difficult to decide. I thought at first they were due to tuberculosis, but if this emaciated Negro had had tuberculosis as well as syphilis, he would have been dead long ago, and his X-ray films would also have shown the results of tuberculosis.

This case measures up pretty well with Howard's four criteria. He had the stigmata of syphilis (in pharynx).

He had a markedly positive Wassermann.

His sputum was negative for tubercle bacilli, but this examination should have been repeated oftener. This was not done because our sputum examinations had been so unsatisfactory that we had gotten to paying little or no attention to a negative report, if the signs and symptoms of tuberculosis were present. From outward appearance, the passer-by would have diagnosed this man as a hopelessly advanced case of tuberculosis, and it was only the response of the disease to anti-syphilitic treatment that convinced me that I was handling a case of lues uncomplicated with tuberculosis.

In the colored race there are undoubtedly many cases of combined syphilis and tuberculosis of the lungs, as well as many uncomplicated cases of tuberculosis. There seem also to be a certain number of uncomplicated cases of syphilis of the lungs. How frequently these cases occur still remains to be determined, though Carter has found one-third of one per cent in his sanatorium, which is naturally far greater than that found in a white sanatorium. I know that he is going to continue his search for these cases, but feel that the subject needs a more general attention on the part of Southern clinicians who should also publish their cases in order to throw more light on this obscure problem.

Bank of Commerce Building.

THE DIAGNOSIS AND MEDICAL TREATMENT OF TOXIC GOITER.*

By JAMES H. SMITH, M. D., Richmond, Va.

The diagnosis of a classical case of toxic goiter can be made at a glance, and until a year or so ago there was no medical treatment worthy of the name. We may, therefore, devote our time chiefly to the diagnosis of the mild or borderline case of toxic goiter, and to the very recent advance in medical treatment through iodine therapy.

For the present, in our practical work, I think we will do well to keep to the idea that we know no toxic goiter other than such as is associated with increased thyroid function as expressed in an elevated basal metabolic rate, and even within this strict definition, to emphasize that the rate as experimentally determined, shall be a true basal rate. I hold to this proposition knowing that such an authority as Crile does not regard increased metabolism as essential to the diagnosis. I do not wish to be understood as asserting that a metabolism test is necessary to the diagnosis of toxic goiter, but I should be unwilling to make the diagnosis unless I believed that the test, if done, would show an elevated rate. I am, therefore, in opposition to the doctrine of hyperthyroidism or toxic goiter with a normal basal metabolic rate.

Another idea has been advanced which I think clinicians, for the present, should reject as leading to unsafe practice. Lieb, Hyman and Kessel have quite recently published a great deal of matter on the thyroid. They reported eighty-six cases "with many or even all of the classical symptoms of the text-book picture of exophthalmic goiter," with a normal metabolism, and who "did not suffer from that disease." No one will deny that frequently we see cases with many of the classical symptoms of exophthalmic goiter, having normal metabolism and not suffering from thyroid disease. With this part of the statement we have no difference. We can imagine also a rare instance of a fortuitous chain of circumstances that might result in all the classical symptoms, due to a combination of causes other than thyroidal in nature. But I think a dangerous and unwelcome diagnostic snare is set for unwary feet to combine the words "many" and "all," and apply them to a group of eighty-

*Read at the meeting of the South Piedmont Medical Society, at South Boston, Va., April 21, 1925.

six cases seen in the experience of one group of writers.

Like other laboratory procedures, the basal metabolism test should be looked upon as confirmatory of clinical study and not as the source of authoritative decree. Though personally an enthusiastic follower of its uses, I believe its merits are now generally appreciated, and its limitations are more in need of emphasis. Recall the factors that enter into its determination.

The patient is supposed to be in the post-absorptive stage as regards the taking of food.

Muscular effort is minimized as far as may be possible.

All disturbing psychic and environmental influences are shut off in theory, but the patient's psyche is largely under her own control if under anyone's, and if saliva trickles down her throat and sets up an impulse to cough, this for the time being dominates her environment. She may be apprehensive of a test strange to her, or if it is not her first experience with it, her recollections may be full of a seeming horror.

The patient's temperature is believed to modify her metabolic rate approximately ten points for each one degree centigrade of body temperature. What should be her exact normal body temperature?

The volume of gasses varies with temperature and barometric pressure, and with some other factors, such as water vapor, the last not usually being taken into account.

The patient is supposed normally to consume so much oxygen per square meter of body surface. Her body surface is arrived at by curves worked out on the basis of height and weight. This necessarily is only approximate.

The caloric value assigned to oxygen is an average of its heat producing power in combination with the various food principles.

Females are accepted to have a normal rate about 7 per cent slower than males. It can be only very roughly true.

The rate slows with age. Without doubt it does in the average, but some women are old at thirty and others young at fifty.

The net result of the test is expressed as a definite figure. The variables introduced into the calculation make it necessary to adopt a quite wide range as the normal, and this usually is fixed at minus ten to plus ten. It is really remarkable that a normal can be arrived at.

I have gone at length into what may appear hypercritical analysis in order to formulate an objection to a claim sometimes advanced that it is in the borderline case that the basal metabolic rate is most useful. I do not think so. A borderline reading on the plus side, if associated with a borderline clinical picture, may properly leave the clinician in a borderline state of mind, which, it seems, is what the interests of the patient demand for the time being. Such a rate, because outside the prescribed limits for normal, does not set up a positive diagnosis in the sense that finding a few tubercle bacilli or tapeworm eggs does. On the plus side we should think in terms of tens, not of ones. For at least two reasons more latitude must be allowed on the plus side than on the minus: (1) the scale of abnormal range is greater on the plus side. A very high rate would be plus 100; a very low rate would be minus forty. (2) The most frequent sources of error are toward the plus side. As Means and Burgess put it: "The finding of normal rates in persons suspected of having hyperthyroidism practically rules that condition out, but the finding of an elevated rate does not necessarily rule it in." In line with what seems to be their experience, I think in our series of tests the chief usefulness of the method has been in eliminating suspected thyroid hyperactivity. Very rarely should any advice be given the patient looking to a reduction of thyroid activity on the basis of the metabolic rate, other than would be given without it. To put it differently, I should be unwilling to endorse a report of any plus figure without seeing the patient, but would usually accept a low or normal figure from any reliable technician who could guarantee against mathematical errors.

I have spoken at length of the limitations of the metabolism test, especially in the diagnosis of mild cases of toxic goiter. I can more briefly declare my great faith in its helpfulness when the test is carried out with due consciousness of its liability to error, and when consistent results can be successively shown through repeated tests in a given case.

Let us turn now to consider what clinical or bedside evidence is necessary for a reasonable diagnosis of toxic goiter as the essential condition requiring treatment.

First, to speak negatively: A patient with any manifest disease, such as diabetes, myo-

cardial degeneration or chronic nephritis, marked anemia or leukemia, must be looked upon as an impure problem in thyroid diagnostics, and the patient studied as a whole rather than as the subject primarily of an endocrine disturbance.

If pulmonary tuberculosis exists, apparent mild hyperthyroidism should be regarded with skepticism or considered to be the effect of the pulmonary infection, and treatment of the lung condition given first place.

If definite chronic focal infection is present, especially in the upper respiratory tract or teeth, a mild hyperthyroidism is at times completely and permanently relieved by surgical removal of the infection.

With these reservations, and omitting such inconclusive symptoms as sweating, vasomotor flushes, digestive symptoms and the like, there are six symptoms and signs which are to be noted as present or absent when the diagnosis of toxic goiter is under consideration. I shall number them serially in order to make a rather fanciful use of the numerals.

(1) Nervousness; (2) Tremor; (3) Loss of weight; (4) Increased pulse rate; (5) Exophthalmos and other eye signs; (6) Goiter.

To define more accurately the use of these terms: As is well known, the significance of thyroid enlargement does not vary directly with its size, but rather with its associated symptoms. The exophthalmos of toxic goiter is usually easy to distinguish from a normal even though exaggerated prominence of the eye-ball, and is confirmed by the presence of the Stelwag, von Graefe and Moebius signs. The term tachycardia will arbitrarily be used to refer to a pulse rate usually over 100 and not falling below 90 even under the basal conditions of the test. Nervousness and tremor are necessarily somewhat vague terms, but by loss of weight is meant something more than 5 per cent of the recent normal body weight.

Nervousness, tremor and loss of weight manifestly are insufficient for the diagnosis of toxic goiter, nor do I think the addition of tachycardia suffices in the absence both of eye signs and goiter. I doubt whether basal metabolism determinations have helped to establish as practical truth, that exophthalmic goiter may exist without either goiter or exophthalmos.

On the other hand, given goiter, the addition of almost any two, or at most three, of the

other symptoms, is usually confirmed by the basal metabolic rate as indicating thyroid over-activity.

I believe, then, it is roughly true to say that the symptoms listed may be assigned values corresponding to their numerical order, and that the diagnosis of toxic goiter approaches certainty as the sum of these values exceeds ten. Nervousness, (1); tremor, (2); loss of weight, (3) and tachycardia, (4) would just equal ten: the addition of exophthalmos (5) would give fifteen, and of goiter (6) the full total of twenty-one. The basal metabolic rate should be used when possible to confirm the impression. One hundred cases analyzed in 1922 accorded quite well with the rough rule just given, the metabolic rate used as a criterion, and while no detailed analysis has been made since, the series now numbers approximately 450, and the impression gained in the earlier cases still holds. As for a ratio between the metabolic rate and clinical symptoms, the pulse rate will be found to bear a direct proportion to the metabolic rate much more constantly than will any other symptom or sign.

Therapeutic considerations now make it necessary to distinguish the two great types of toxic goiter, exophthalmic goiter and toxic adenoma, with greater care than formerly. I am not sure that it can always be done with certainty, nor, indeed, that the two types of pathology are not sometimes mixed in a single thyroid gland so as to make the differentiation impossible. However, the main considerations are that adenoma is a tumor, giving the physical characteristics of one or several tumors within the thyroid gland, as contrasted with diffuse hypertrophy in exophthalmic goiter; adenoma has existed on an average of fifteen years before the development of toxic symptoms, as compared with a recent thyroid enlargement in exophthalmic goiter, the average age of the adenomatous group being considerably greater; and exophthalmos does not develop in adenoma regardless of the degree of toxicity. Again, it should be reiterated that exophthalmic goiter may exist without exophthalmos.

Medical Therapy: Rest of body and peace of mind have long been recognized as important in any method of treatment of toxic goiter. Limitation of protein intake would seem to assume additional importance in view of Mac-

Leod's statement that the pulse is quickened after the administration of thyroxin only when protein food is also taken.

Within the past year or two there has been made available a medicinal therapy of definite value. Following Plummer's announcement of the effect of iodine administration (Lugol's solution) in exophthalmic goiter, there has been a remarkable unanimity in the reports of those who have written on the subject. The conclusions reached in the Thyroid Clinic of the Massachusetts General Hospital† will be quoted as representative:

1. Iodine by mouth will produce abrupt remission in most cases of exophthalmic goiter.

2. The remission is often as rapid and as extensive as that following subtotal thyroidectomy.

3. It is believed that iodine is the causal agent of this remission.

4. Iodine alone, as now used, has not been shown to be sufficient to suppress the disease permanently.

5. After a patient with exophthalmic goiter has been taking iodine, a rapid rise of metabolic rate and increase of toxic symptoms will occur within one or two weeks if the iodine is stopped.

6. In some cases of exophthalmic goiter, iodine has no observable effect.

The usual dose is fifteen to twenty drops daily. In toxic adenoma no benefit is observed, and at times symptoms appear to be aggravated by its use.

There is a lesson in humility in the use of iodine in goiter. Ten years, or even three years ago, as I understood the orthodox teaching, there was no place in the treatment of hyperthyroidism for iodine, thyroid gland or any product used in the treatment of hypothyroidal states. If I saw a hyperthyroidal patient who had been given iodine, I thought she had suffered at the hands of some practitioner who had not learned that such practice was discarded long ago. Now, because of a theory conceived by Plummer of an incomplete thyroxine molecule in exophthalmic goiter, a definite advance is made in the management of the condition. There is doubtless a good deal yet to be learned about it. Starr and his co-workers in Boston note that the quantity of the dose in relation to various factors, such as the

size of the gland, rate of metabolism, age of the patient, pathology of the goiter, duration of the disease, and the sympathomimetic symptoms, is yet to be solved. After all, the measure of success that has come out of Plummer's theory does not prove the theory. Certain patients whose symptoms have remitted under iodine suffer exacerbations while still taking the drug. Iodine prevents simple goiter and the hypothyroidism, myxedema and cretinism that may follow in the train of endemic goiter. Why is toxic goiter so much more frequent in women than in men? The whole subject still presents the most inviting fields for investigation, and for aught we now know iodine may yet find a use in toxic adenoma.

INDUCTION OF LABOR AT OR NEAR TERM.*

By BURNLEY LANKFORD, M. D., F. A. C. S., Norfolk, Va.

It often happens in my own experience that I fail to use certain agents or procedures with which I am familiar but which, for one reason or another, I have neglected. Hearing or reading a paper on certain subjects will remind me: "Here is something that I have been overlooking, that will serve me well when needed," and so I go home carrying an old weapon, newly polished, for my armamentarium in the age old fight against illness and death. Such may be the case with you, and so I am bringing to your attention a simple procedure that, when wisely used, will prove of great benefit to our women patients.

I would like briefly to discuss the subject of the induction of labor under two heads, indications for, and methods of, induction.

While the title of this paper indicates a discussion of labor at or near term, will you allow me to digress just a little for a word or two about pernicious vomiting as an indication for the induction of labor? And by this we mean *pernicious* vomiting, because every case of vomiting that may seem pernicious is not, and very few women who have severe and long-continued vomiting really have the pernicious type. Just as we have ceased making the diagnosis of "neurasthenia" as an entity, so it seems to me we are gradually ceasing to attribute the vomiting of pregnancy to neurotic or reflex causes. It is doubtless true that a woman of what we call neurotic temperament (whatever

†Archives Internal Medicine: 34, No. 3, Sept. 15, 1924, p. 355.

*Read before the Southside Virginia Medical Society, at Norfolk, Va., March 10, 1925.

that may mean) will have more serious and more difficultly controlled vomiting than a woman of a phlegmatic temperament; at the same time, is it not probable that the neurosis is not the cause but simply an aider and abettor? I believe we are all coming to think that we can more accurately classify all vomiting of pregnancy as slightly toxic, more toxic, deeply toxic, and pernicious. A discussion of the causes of such toxemias is not a part of this paper. What we have to do is to distinguish, if possible, between the severe and pernicious types, and abort the latter by induction in the least traumatic way. Any woman we suspect of having pernicious vomiting should be studied as carefully as we can, should certainly be isolated from her friends and relatives, if possible, and if creatinin appears in the blood as high as 3 or 4 milligrams per 100 c.c. we had better not wait longer for hoped for improvement, because if we wait until jaundice becomes marked and the development of coma, torpor and coffee ground vomit, it may be too late, no matter what we do. So far as I know, the marked increase in creatinin is the most valuable sign and one that must not be disregarded.

Now to get back on the main track. Probably the indication that will most often warrant the induction of labor near term is the development of severe toxemia. The question of the type of toxemia present does not interest us much just here as the fact that a woman *is* toxic, and that she is growing worse instead of better, although under treatment.

A great deal of good work is being done in the investigation of toxemias of pregnancy; we have numerous theories as to the cause, some of them plausible and comprehensive, but the fact still remains, at least so far as I am aware, that we do not know the cause or causes of the pre-eclamptic state or of actual eclampsia, and oftentimes we do not know how to remove the conditions in time to save the woman. What we do know is, that only pregnant women have eclampsia, and that despite the advances made in the reduction of the mortality by treatment of the toxemias expectantly (that is by rest, isolation, diet, elimination, morphia and the avoidance of rough and rapid delivery), there yet remains a considerable percentage of women who do not improve sufficiently under treatment, or if they improve temporarily, soon relapse. Such women must be relieved of

the extra load they are carrying in the child, if we would save them from actual eclampsia and even death. Given a woman in the latter months of pregnancy who has become toxic, has been treated, has improved slightly or markedly, but who begins to "go bad" again, *then* is the time to induce labor, in the best interest of the mother, whether the child is viable or not, and whether circumstances be convenient or not. Only by such a course can we as a profession eliminate the scourge of eclampsia. We look forward to a better day, a day when symptoms may be accurately treated and the cause removed without the loss of the child, but as yet that day has not dawned. What we do know is that even now, in the vast majority of cases, we can prevent eclampsia, *if* we watch our patients closely enough, and treat them as outlined above.

Certain multiparae, who have had difficult forceps deliveries at term, whether from over-size babies, or from slightly contracted pelves, may have labor induced two or three weeks before term, with benefit to themselves and their offspring. The question immediately arises in such cases—when are they "two or three weeks from term?" That we cannot say with absolute precision, but we can estimate accurately enough to avoid the two dangers involved, which are inducing labor too early, therefore endangering the child, or waiting too late and having the same experience as in the preceding labors. Without going into details, the following observations will help to determine the time to safely induce labor in such cases: A multipara who gives a history of difficult, or forceps deliveries, should first of all have a careful examination of her pelvis so that we may have a fair idea of any degree of contraction; nothing can excuse us from this. A very careful history of the cessation of menses should be taken and recorded; the date of first fetal movements; monthly examinations of the abdomen, noting the height of the top of the fundus above the symphysis; estimations of the size of the fetal head by external pelvimetry; the general "feel" of the fetus; the condition of the cervix, which may be determined by rectal or vaginal examination. Another class of multiparae, almost like the above, is the woman who habitually runs over-time, and has a large baby as a result; the post-mature fetus about which we hear increasingly more. When such women come un-

der our care, it seems to me good obstetrics to induce labor on her when her time, as calculated by an accurate menstrual history, has approximated term.

Dr. Norris, of Philadelphia, a very experienced and careful obstetrician, thinks that a primipara with a floating head at term should have labor induced, providing the floating head is not due to an impossible pelvis.

The question of lesser degrees of contracted pelvis deserves consideration in this connection. It seems to me that we may safely advise a woman with such a pelvis, who has had one or more difficult labors, that induction of labor, even as much as four weeks before the carefully estimated full term, offers her and her child a safer method than the full term instrumental delivery or Cesarean sections. We may be more conservative with the primipara, who has a mild degree of contraction, as we do not know before hand how much molding may take place, nor how well she may use her secondary powers of labor, nor can we tell exactly how much contraction any one woman has. In addition, there are a number of other factors that enter into such a decision with a primipara that might make us hesitate to induce labor so far ahead. With slightly contracted multipara, however, who has showed what would happen in one or more previous labors, there is no question in my mind but what the induction is the method of choice.

In certain cases of placenta previa, where the location of the placenta is such that a rupture of the membranes will allow the head to come down and plug the lower segment, it seems to me safer to induce labor in such cases as soon as they are discovered, rather than wait for further and increasingly dangerous hemorrhages. (Such cases should have bag induction).

There is another class of women, not a large class, yet one that we will all recognize, one that we all see occasionally, and in this class it seems to me we are fully justified in inducing labor two weeks, or thereabouts, before term: I refer to the woman who is extremely distressed during the last six or eight weeks of pregnancy, whether by persistent backache, very pendulous abdomen, general obesity with profuse sweating in the hot months, inability to walk more than a few steps without great discomfort, vague abdominal pains, general malaise, and occasionally other factors that are

not dangerous in themselves, but that make and keep women miserable during these latter weeks.

Now as to the methods of induction! Unless the indication be urgent, it would seem wise to try the effect of non-mechanical means first in every case. By so doing, quite an appreciable number will go into labor, and labor so induced is certainly safer than mechanically induced. Watson, of Toronto, has reported 425 cases in which attempts to induce labor by a sequence of drugs, have been successful the first time in about 75 per cent. His plan, unless recently changed, is as follows: An ounce of castor oil is given at 12 M.; one hour later ten grains of hydrobromide of quinine; one hour later, a soap suds enema, copious and hot; one hour later, ten more grains of quinine; three hours later ten grains of quinine. If patient has not gone into labor nine hours from the last dose of quinine, he gives $\frac{1}{2}$ c.c. of pituitary extract, and repeats this every half hour for six doses, if pains do not ensue. There are reports from other men that pituitary extract so used has been responsible for the premature separation of the placenta, and I do not mention this use of pituitary gland to endorse it.

Castor oil sequence having failed, the patient is never any the worse but almost invariably will express herself as feeling decidedly better the next day after taking the oil. We then have to decide upon which of the mechanical means we will use. Of these we have at our disposal the several types of bags, rectal tubes, bougies, packing with gauze, and simple rupture of the membranes. The Voorhees' bag is the generally accepted one, although there are a number of others used to induce labor, among which should be mentioned the Hirst bag. In cases of placenta previa where we wish to induce labor, the bag is just what we want until the head can be made to act as a plug, but in other conditions where we wish to induce labor, it seems to me we can dispense with the bag for a better means of induction. By better, I mean more easily and more aseptically introduced, a more nearly natural process of labor induced, and a less painful first stage. Either the old, soft, very flexible rectal tube, as advocated and used by Dr. Richard Norris, or the gauze packing, introduced through a slightly curved tube, will take precedence over the bags in the points just enumerated. My personal

preference and largest experience is with the gauze packing. This does not require a skilled or surgically clean assistant—any woman of ordinary intelligence who is not rattled and who will listen to your instructions, will be able to render all the assistance needed to introduce the packing.

Very few multiparae will need any anesthetic. I think it wise to give a short anaesthetic to every primipara, the choice of the anaesthetic depending upon the indication for the induction.

Dorsal or Sims' posture may be used; the vulval hair should be closely clipped rather than shaved; the external genitalia painted with two coats of 3½ per cent tincture of iodine (which is half the pharmacopoeial strength), neutralized as soon as dry by the copious application of alcohol; or the external genitalia may be painted with 2 per cent mercuriochrome solution. Two fingers are then introduced into the vagina (and not removed until all the packing is in), the posterior vaginal wall retracted, and the vaginal vault and portio vaginalis of the cervix painted with the iodine or mercuriochrome solution. The tip end of the packer is then gently pushed well up through the cervix, guided by the two fingers, which are usually sufficient for that purpose without the necessity of catching the cervix with forceps. The assistant now holds the jar or tube of packing close to the receiving end of the packer and the end of the gauze is easily fed into the packer by means of the plunger, without having to be touched by anything. Thus, the gauze is fed into the lower segment of the uterus directly from the sterile container and through a sterile tube—nor can this little operation be done in any cleaner manner. From two to four yards of a two inch gauze strip can usually be packed in; the direction of the inner end of the tube being changed slightly several times, during the procedure, so that as much as possible of the lower segment may be filled. The more accurately this is done the quicker and more surely will labor ensue. Gauze for this purpose should be in strips four to five yards long and two inches wide. Such strips can conveniently be carried in very large heavy test-tube-shaped glass containers, such as may be purchased from any supply house. The strip is packed lightly into the large test tube, the top stuffed with cotton, the whole wrapped in some heavy cotton

container and thus sterilized. When used, the assistant removes the outside wrapping, which may be folded back over the hand, the operator removes the cotton stopper, and the assistant then holds the top of the test tube in close proximity to the packing tube, into which the gauze is fed immediately from the test tube.

Labor pains will begin at various lengths of time from the packing. I have seen this vary all the way from beginning before the patient got back to her bed, to one case, in which the pack had not induced labor thirty-six hours later. When pains do begin, however, they progress more nearly like normal labor, and I am sure that they cause less pain to the woman than labor induced with a bag. Gauze promotes the softening of the cervix and its retraction and obliteration in a way more nearly simulating normal labor than bags.

I do not know of any disadvantages of this method; it has never failed to induce labor but once for me, although I know it sometimes fails. However, bags slip out, pains cease and the bags have to be put back in some cases.

If reasonable degree of gentleness be used in the manipulations, the membranes will seldom be ruptured. If this does happen, the gauze will not be so effective in bringing on labor as will a bag, and it is wise, where possible, to have a bag ready for use, if needed. If pains do not ensue within twenty-four hours, I believe it will be safer to remove the packing, as such a foreign body, when left in too long (no matter how cleanly put in) invites sepsis.

This paper has not included every condition occurring during pregnancy in which induction may be advantageously used, but has covered the majority and has, I hope, served to refresh our memories regarding a useful procedure.

530 Shirley Avenue.

STUDY OF THE FUNCTIONAL CAPACITY OF THE KIDNEYS: SIGNIFICANCE OF SLIGHT DEVIATION FROM NORMAL.*

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and

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For the sake of orientation we will first briefly epitomize the prevailing concept of the physiology of urinary excretion. The kidneys have an abundant blood supply, the renal

*Read at the meeting of the Tri-State Medical Association of the Carolinas and Virginia, in Richmond, February 17, 1925.

arteries taking off directly from the abdominal aorta and being quite short. The arterial system leads eventually to the glomeruli of the kidneys where the arterioles break up into large capillary tufts. The vessels leading from the glomeruli are distinctly smaller than the afferent ones. This favors the idea that the blood in passing through the glomerulus loses a large proportion of its water. The arterioles leading from the glomeruli break up again into a second capillary network distributed around the convoluted tubules. This double capillary system is quite unique among the organs of the body and justifies in part the assumption that while water and perhaps other substances pass out through the glomeruli, the excretion of certain other constituents of the urine is a function of the convoluted tubules.

Briefly, the prevailing theory is that fluid passes out through the capillary walls in the glomeruli, through the very thin Bowman's capsule purely by physical processes, and that this transudative fluid contains its constituents in approximately the same concentration as that of the blood plasma. The glomerulus acts as a semi-permeable membrane allowing passage to water and most of the crystalloid substances but holding back the colloids. As this very dilute urine passes the cells of the convoluted tubules it is altered by the resorption of some of its constituents through the epithelium and back into the blood stream. Aschoff divides the urine excretory system into three sections, the glomerulus or filtration apparatus, the proximal convoluted tubule or resorption apparatus, and the loop of Henle, which serves as a pressure regulator.

The colloidal chemists explain the resorption of water in the primary tubules on physical grounds. Fischer believes that blood rich in carbon dioxid, such as arterial blood, has a tendency to swell or absorb water, while blood poor in carbon dioxide, such as venous blood, has a tendency to give up water or shrink. The arterial blood in the glomeruli gives up water readily while the venous blood in the second set of capillaries tends to absorb water.

The resorption of water explains the concentration of urine but it does not explain the alteration in proportion of the various elements. Sodium chlorid is concentrated to double the plasma strength, while urea is concentrated about forty times. In explaining this, Cushny divides the constituents of the

blood plasma into threshold bodies and non-threshold bodies. Dextrose, chlorid and sodium are threshold bodies and are excreted only when their concentration in the blood exceeds a certain percentage. Threshold bodies are necessary for vital processes and are retained unless in excess. On the other hand, substances which are of no use to the body, such as urea, are excreted when present even in small amounts and in this way have no appreciable threshold of excretion.

According to the colloidal theory, substances with threshold value pass through the glomeruli but are resorbed along with water through the tubular epithelium.

Aschoff maintains that in such a condition as mercury poisoning, mercury is excreted through the glomerulus and it is only during its resorption through the tubules that damage to the latter occurs. Gil-y-Gil has demonstrated that in experimental uranium poisoning the epithelial cells damaged during resorption acquire a tolerance to the poison. Lethal doses may be subsequently given with impunity, the uranium being excreted in the urine instead of being taken up in the cells. This gives us an insight into one phase of the production of chronic nephritis. The epithelial cells become less permeable, if we may use this term, to the substances which have passed out through the glomeruli and do not resorb them as they should. This is probably true of water as well as of the substances in solution. As a result, the concentrating ability of the kidneys becomes damaged.

We have been accustomed to describe parenchymatous nephritis and glomerular nephritis. In the one the damage appears to have been chiefly tubular, in the other glomerular. But both systems are more or less involved in either type and the clinical differentiation is often difficult or impossible. The word nephritis presupposes an infection or inflammation of the kidneys. Nephrosis is a designation applied to those types of renal pathology in which there is no evidence of infectious origin and in which the cause appears to have been toxic. This applies particularly to those cases with predominant involvement of the tubular epithelium. Parenchymatous nephritis is characterized by degeneration of the epithelium lining the uriniferous tubules with little or no involvement of the glomeruli. The kidney is slightly enlarged, the cortex broadened, and

an excess of fat deposit is found in the cells of the tubules. As a general rule there is no cellular infiltration of the connective tissue suggestive of localized infection, so that we may consider this condition a nephrosis. This is the type of picture observed in mercuric chlorid poisoning.

In acute and chronic glomerulonephritis the gross appearance resembles that of parenchymatous nephritis. The tubules are involved in greater or less degree, the glomeruli are swollen and show an increase in the number of nuclei dependent on multiplication of both endothelial and epithelial elements and in the advanced cases a crescentic mass of desquamated cells occupies the capsular space. These are usually inflammatory changes. Glomerular involvement does not undergo such complete recovery as does the parenchymatous type. The vascular tufts become adherent in places to the capsule and destruction of portions of the glomerulus results in partial hyalinization.

The interstitial connective tissue almost invariably undergoes proliferation and it was customary formerly to distinguish a parenchymatous and an interstitial type of nephritis, depending upon the degree of connective tissue formation. Weigert has shown, however, that chronic parenchymatous lesions are nearly always associated with interstitial growth. He interprets the connective tissue proliferation as an attempt to fill in the defect caused by the destruction of parenchyma, that is, a replacement fibrosis.

The secondary contracted kidney follows extensive parenchymatous destruction and connective tissue overgrowth and we may look upon this as the end stage of a chronic glomerulonephritis. The scar tissue in the kidney has a patchy distribution.

The primary contracted kidney or red granular kidney differs in many essentials from the types of kidneys just described. In the red granular kidney we observe bands or wedge-shaped areas of fibrous tissue enclosing atrophic tubules and obliterated glomeruli, alternating with active parenchyma. The glomeruli are small, hyalin and surrounded by a thickened capsule. They have suffered total destruction. In other portions of the kidney they are normal. The arterial walls in the red granular kidney are always affected. The elastic layer becomes thickened and the intima undergoes fatty degeneration. These de-

generative lesions are undoubtedly a phase of arteriosclerosis, and the vascular lesion or arteriosclerosis is probably the chief factor in the production of the primary contracted kidney. The vascular changes are followed by nutritional disturbances which endanger particularly the glomeruli. After their destruction the tubules atrophy from disuse. Thus we see that the renal damage in all forms of nephritis involves both the glomeruli and the tubules, and the variations in the different types are only relative. Even in the arteriosclerotic or primary contracted kidney both systems are involved. It is apparently only in true nephrosis that the glomeruli remain relatively free from damage.

We can, therefore, readily understand the difficulty of attempting to localize renal injury in the living patient, whether in the tubules or in the glomeruli. It is far safer and more correct to speak of acute or chronic nephritis with or without hypertension, thus describing the renal pathology as a whole. This attitude has been urged particularly by Christian in this country and by Jores and others in Europe.

The fallaciousness of simple qualitative urinalyses is known to all. The value of functional tests is conceded. The interpretation of their significance is, on the other hand, not always above question. We no longer think of the salicylic acid test as a measure of the permeability of the glomeruli, the methylene blue test as a measure of the osmotic function of the epithelial cells, and the phlorizin test as a means of determining the secretory ability of the renal epithelium. Even with those tests which are in general use today it is hazardous to venture concrete hypotheses with regard to their *modus operandi* in the kidney.

In terms of the preceding discussion we may, however, at a certain risk of accuracy, visualize the reaction of the kidneys to the commonly used functional tests somewhat as follows:

Disease of the kidneys affects the body either by allowing substances to pass out which should be retained, or by retaining substances which ought to pass out. Of the substances which should be retained but do escape, albumin is of chief importance. Of those which should be excreted but are retained those commonly measured are uric acid, urea and creatinin. Either the glomerular membrane becomes less

permeable to them or they are resorbed in the tubules. The former seems the more likely. These are non-threshold substances and normally are not resorbed. Moreover, observations indicate a diminution rather than an increase in the absorptive capacity of the tubules.

Phenolsulphonephthalein is an organic dyestuff towards which the body reacts as it does toward urea. Undoubtedly it is excreted through the glomerular epithelium and normally is not resorbed to any great extent in the tubules. Like urea, in chronic nephritis it probably does not pass as readily through the glomeruli. The reaction of the kidneys to phenolsulphonephthalein is proportionately so similar to their reaction to urea and other nitrogenous substances that the phthalein test has come to be used as a measure of the capacity for excretion of nitrogenous substances.

We cannot at present explain with entire satisfaction the inability of the damaged kidneys to concentrate those crystalloids which do pass the glomerulus. The fluid passing through the glomeruli presumably contains those crystalloids which are not materially obstructed in about the same concentration as in the blood. Failure to concentrate is then presumably due to some change in the tubular epithelium. We have seen that the chronically poisoned epithelium becomes less permeable to certain substances. It is possible that the failure to concentrate substances, such as sodium chlorid, is due to lessened resorptive capacity for water.

We are not so much interested in sodium chlorid as an excretory product as we are in the kidneys' ability to concentrate.

It is usually stated that the urea excretion is an index of glomerular function, while salt and water excretion is an index of tubular function. The two latter are threshold bodies. From the foregoing we can see how in a general way this may be true.

Normally the kidneys can concentrate uric acid about twenty-three times, urea sixty times, and creatinin one hundred times. With functional impairment, therefore, uric acid, which is concentrated with least ease, increases first in the blood, while creatinin does not increase materially until toward the end stages of a chronic nephritis.

We will not detail the normal standards for the various functional tests.

Certain generalizations have been made from

functional studies, which, while in the main correct, have important exceptions, and it is our desire briefly to direct attention to certain of these. It has been stated, for example, that the examination of a single specimen gives no information regarding the functional capacity of the kidney. It is true that little information is gained from a single urinalysis and that when its specific gravity is low, we have no indication of the functional capacity of the organ. But when the specific gravity is 1020 or above we may be confident that the concentrating ability of the kidney is reasonably good, and that nitrogenous substances are being excreted by the kidney in essentially a normal manner. Thus, a single specimen with high specific gravity is of definite value. Of course it is necessary to rule out the presence of sugar.

It has been stated that when the phthalein excretion is high we may be confident that there is no nitrogen retention in the blood. This is not always true. The particular exception is to be found in acute nephritis. Thus, a patient excreting 50 per cent phenolsulphonephthalein in two hours (nearly a normal figure) had a salivary urea index of 80 with calculated blood urea 81 and non-protein nitrogen concentration in the blood of 78 milligrams per 100 c.c. This increased until the patient had typical uremic convulsions while the phthalein elimination never fell below 45 per cent in two hours. The kidney was able to eliminate phenolsulphonephthalein, etc., in normal concentration, but the trouble lay in the water excretion which was so greatly impaired that not enough water could pass through to prevent the damming back of urea in the blood. In support of this, the water excretion in two hours following a heavy fluid intake was 300 c.c. instead of the normal 1,000 c.c., and the specific gravity was 1,018 as contrasted with the normal of 1,005 for this test. Acute nephritis is then an exception to the generalization that with a high phthalein excretion there is no nitrogenous retention in the blood.

A high specific gravity does not necessarily indicate normal ability to concentrate urine. We may find lack of flexibility in the two-hourly renal test, the variation in specific gravity throughout the day being less than 10 points, showing distinct fixation of specific gravity at a high level. This is particularly apt to occur in parenchymatous lesions and we

have observed it repeatedly in cases of long-standing focal sepsis.

A tendency toward fixation of specific gravity at a high level may appear in normal individuals who from habit have a low water intake. This observation is of help in directing their daily routine in that, with a greater fluid intake, they develop a normal type of reaction. We have found that such an individual can be fairly readily differentiated from the low grade nephritic by increasing the fluid intake throughout the day. Large amounts of water are given during the day but none after six or seven P. M. Where it is simply a matter of fluid intake, the night volume and specific gravity are within normal limits. Where there is true damage, an abundant fluid intake during the day may overcome the fixation in the day specimens with resulting normal fluctuation, but at night the volume is increased and the specific gravity often falls below normal.

Thus, an individual on whom numerous two-hourly renal tests have been performed, usually showed a specific gravity ranging between 1,020 and 1,026, about half the normal variation. His night output was on one occasion 360 c.c. with specific gravity 1,020. These night figures are normal, the day figures normal except for diminished variation. After an abundant fluid intake the specific gravity of the day collections varied from 1,010 to 1,025, which is again normal, but the night output was 1,125 c.c., practically twice normal.

Our experience has been that in early kidney damage, particularly that resulting from low grade focal infection, the picture presents either a negative urinalysis or an occasional cast and leucocyte with or without albumin, and a tendency toward fixation of specific gravity at a high level without ability to concentrate the night urine following heavy fluid intake.

However, no one test is sufficient in all cases and no study of renal function even in the mildest nephrotic is sufficiently complete unless all of those tests of proven value have been made and correlated. No single functional test is sufficient for the recognition of early pathology. This is due chiefly to two factors: First, excretion for some substances may be normal while impaired for others, and, second, even in the normal there is considerable fluctuation in the response, and multiple checks must therefore be applied.

The question arises, which tests should be used by preference. In England the estimation of the blood urea and of the urinary urea concentration are held important. In France reliance is placed chiefly upon the estimation of blood urea, the maximum concentration of urea in the urine, and on Ambard's co-efficient of urea excretion. In the United States blood nitrogen estimations and the phenolsulphone-phthalein test are most commonly used.

To these latter we would add as essential for a proper evaluation of kidney function, the two-hourly concentration test and the water excretion test. The urea concentration factor is equally valuable but has no great superiority over the phthalein.

Medical Arts Building.

HODGKIN'S DISEASE—AN ATYPICAL CASE.*

By O. O. ASHWORTH, M. D., Richmond, Va.
From the Medical Department of St. Elizabeth's Hospital.

Mr. H. W. M. B., single, American, age twenty-seven, occupation, farmer, admitted to St. Elizabeth's Hospital December 6, 1923, complaining of "cramping pain in the legs and hips, and headache."

His family history was essentially negative and his past history was negative except that he had just recovered from an operation for appendicitis, at which time his tonsils were also removed.

The history of the present illness given by the patient was essentially as follows: Nine months ago, he had a great deal of cramping pain in his hips and legs which was intermittent and had no tendency to be exaggerated at any special time during the day. About one month later he had "flu" and was confined to bed for a period of six weeks. About two months later he had another attack of "flu" and was compelled to be in bed for about two weeks. He continued to feel badly generally and soon afterward his attention was called to some enlarged glands in his neck. For this he consulted an osteopath, who told him that he had "liver trouble" and goitre and gave him some electrical treatment.

His condition did not improve and he consulted a physician who advised the removal of his tonsils and appendix, which was done six weeks before admission to St. Elizabeth's Hospital. After the operation the surgeon in-

*Read before the Richmond Academy of Medicine, December, 1924.

formed him that his spleen was found to be enlarged and advised him to come to Richmond for X-ray treatment for "blood trouble."

There was no history of epistaxis or unusual hemorrhage or easy bruising.

The cramping in his legs had seemed better since the operation, but he was becoming much weaker and was rapidly losing weight. The glands in his neck seemed to be somewhat larger than when first noticed, but were never red or tender.

Briefly: His P. E. indicated a well developed man of medium height with signs of marked loss of weight. His temperature was 100.8 when admitted to the hospital. The skin was sallow, mucous membranes pale, the conjunctiva yellow, and the tongue pale and slightly coated. There were glands in the lower left cervical chain which were considerably enlarged, each being about the size of a small cherry. The glands were freely movable, slightly indurated and not tender. There were no other palpable glands.

Thorax: The right supraclavicular fossa was deeper than the left. Expansion was apparently equal on the two sides. There was definite increase in retro-sternal dullness which extended to 5 cm. from the M. L. in the left second I. C. S. There was slight dullness in the left axilla from the 7th I. C. S. to the base and in the right axilla from the 8th I. C. S. to the base. There was some increase in inter-scapular dullness on both sides, more marked on the left. There were increased W. V. sounds with prolongation of expiration at the left apex anteriorly to the third rib and posteriorly to the spine of the scapula. There were no rales.

Heart: Apex impulse in 4th I. C. S., 10½ cm. from the M. L. There was a well marked, visible precordial pulsation, which was maximal over the 2nd and 3rd I. C. S., to the left of the sternum. An inconstant systolic murmur was heard at the apex which was not transmitted to the axilla and a definite systolic blow at the pulmonic area which was not transmitted. All sounds were of fair quality, the pulse was regular in F. and R. Medium volume 33 to ¼ minute. The blood pressure was 104/48.

Abdomen: Abdomen was moderately distended and tense. There was a right rectus incision of recent date, which had healed satisfactorily. There was no tenderness at any

point. Tympany extended to flanks. There was no shifting dullness. There was liver flatness from the 4th rib down to the costal border and the area of splenic dullness was considerably increased. The edge of the spleen could be felt on deep inspiration and appeared fairly sharp and not tender.

The knee jerks were obtained only after reinforcement.

Examination was otherwise negative.

Routine Blood Examination: The Hbg. was 55 per cent (Sahli), the R. B. C. 3,960,000 and the W. B. C. was 10,800. Polys 70, Eosinophiles 3 per cent, Large Mononuclears 18 per cent, Lymphocytes 5 per cent. Smear showed some achromia of the R. B. C. with apparent increase of platelets.

Routine urine examination was negative except for a trace of albumen.

Intravenous phenolsulphonephthalein test showed 70 per cent excretion of phthalein the first hour and a trace the second hour.

Gastric analysis showed a trace of bile in all specimens with about 1/10 the normal amount of free and comb. acid in a fractional test meal.

Blood culture was negative. Repeated stool examinations were negative for parasites. The Wassermann was negative.

An X-ray examination of the chest by Dr. F. M. Hodges was negative.

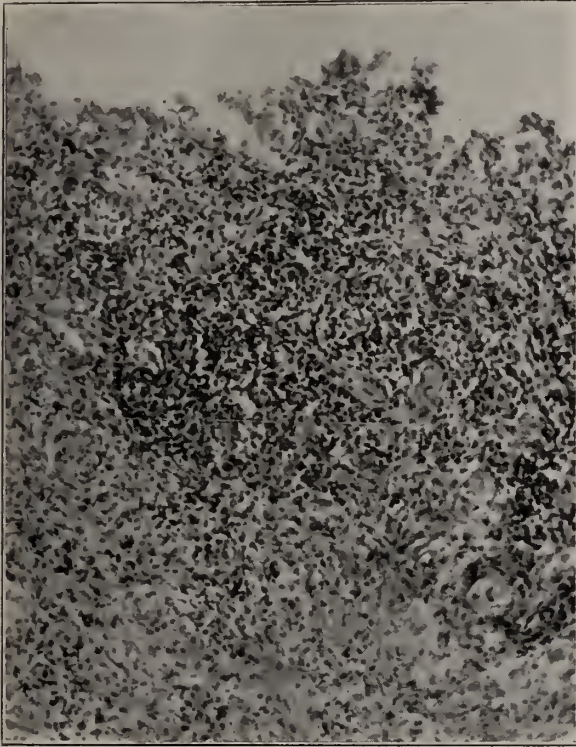
From the enlargement of the cervical lymph nodes, apparent enlargement of the spleen, the blood picture and general symptoms of the patient, a tentative diagnosis of Hodgkin's disease was made.

On December 14th, under local anesthesia, a gland was removed from the neck by Dr. J. Shelton Horsley for histological examination. Sections of the gland were quite suggestive of Hodgkin's disease. This diagnosis was subsequently made from sections sent to Dr. Broders of the Mayo Clinic.

The patient was given X-ray treatment by Dr. Fred Hodges over the splenic area, upper thorax, mediastinum and neck. After three treatments over a period of five days the patient's temperature, which had ranged from 100 to 102½, became normal. His appetite and general condition steadily improved and a letter from him three months from the time of treatment indicates that he is up and around and in apparently good condition.

The crucial test in the differential diagnosis

in this case was in the histological examination of the lymph gland excised for diagnostic purpose. From the history, clinical symptoms and P. E. the diagnosis had to be made from the following diseases:



Section from the cervical gland showing lymphosarcoma of the Hodgkin's type, x200.

Hodgkin's disease, the leukemias, an acute bacteremia, syphilis, tuberculosis, lymphosarcoma, malignancy, and endocarditis.

The blood picture was characteristic of Hodgkin's disease and, of course, eliminated the leukemias. There was no evidence of a focus for an acute bacteremia and repeated blood cultures were negative. The stool examination was negative for typhoid. The enlargement of the spleen and localization of lymphatic enlargement, lymphopenia, negative history and negative Wassermann reaction largely ruled out syphilis as a cause of the glandular hyperplasia. While tuberculosis is a common cause of progressive lymph gland enlargement, it is most frequent in young people, pyrexia is not so often marked, the glands are usually matted together, areas of necrosis and softening occur in the gland and the inflammation extends into the periglandular tissues, often with involvement of the skin and

fistula formation. In tuberculosis there is usually a relative lymphocytosis, and often signs of tuberculosis elsewhere in the body. A differential diagnosis from lymphosarcoma would have been difficult had there not been a histological examination of the excised gland.

Where lymphosarcoma ends and Hodgkin's disease begins is not settled. Those cases which have a localized focus, a strong tendency to metastasize to periglandular tissues, with a rapidly fatal ending, and which have leucocytosis as their most prominent feature, are styled lymphosarcoma. Similar cases with the addition of enlargement of the spleen, but a fairly rapid fatal ending, are termed acute Hodgkin's disease.

McCarthy is of the opinion that the lymphosarcoma and Hodgkin's disease may be but different manifestations of the same condition.

In regard to a true malignancy, there were no marked G. I. symptoms or other evidence of a malignancy as a primary focus.

The history of the case, blood picture, absence of cardiac symptoms and enlargement, and negative blood cultures, might have warranted an exclusion of endocarditis as a cause of the pyrexia, but here, too, the crucial test in the differential diagnosis was in the histological examination of the lymph gland excised for diagnostic purpose.

The preceding case, while not an atypical case of Hodgkin's disease, nevertheless presented certain features which could easily have led to a mistake in diagnosis. The features in the differential diagnosis have been previously mentioned.

Hodgkin's disease, while infrequent, is not rare and comes next in frequency to tuberculosis as a cause of progressive lymph gland enlargement in young people. Tronseau has divided the disease into three clinical periods: the latent period, the period of progress and generalization, and the cachectic period. In the majority of patients the latent period is passed over without any symptoms that attract their attention and slight glandular swelling is the first symptom noted. The symptoms vary as the disease progresses, according to the resistance of the patient and the location and extent of glandular involvement. In the greatest number of cases, the patient first consults the physician because of the discovery in some location of enlarged

glands which have developed painlessly; usually such glands are noted in the neck. Collection of cases in literature give a percentage of fifty per cent or over for primary cervical enlargement. Longcope found primary neck involvement in 66 per cent of eighty-six cases. Of the other superficial groups the axillary glands are first involved more commonly than the inguinal group; following these in frequency are the mediastinal and abdominal group. Splenic tumor develops in 60 per cent to 70 per cent of cases. The patient gradually passes into the cachetic stage with marked anemia, pressure symptoms, and a general state of malnutrition. During this period, fever, which may occur in moderate degree during any stage of the disease, becomes a more marked feature. Febrile periods, often of great intensity and of several days' duration, followed by an apyrexial interval of several days' duration, are again succeeded by a wave of pyrexia. During the febrile periods the patient feels desperately ill, with headache, complete anorexia, vomiting and exaggeration of all symptoms. The afebrile period on the other hand is a period of calm and well-being.

In lymphatic hyperplasias, when diagnosis is doubtful, exploratory puncture or excision of a gland will usually make the diagnosis certain.

While the prognosis in Hodgkin's disease is grave, X-ray and radium treatment will usually relieve symptoms and prolong life. In a few early cases where the diagnosis was apparent correct cures have been reported. The earlier the diagnosis in any glandular hyperplasia the more hope there is for cure by any correct method of treatment.

617 West Grace Street.

APPENDICITIS FROM THE VIEWPOINT OF THE GENERAL PRACTITIONER.*

By J. G. DAVIS, Jr., M. D., Christiansburg, Va.

It is not with the idea of advancing anything new in regards to appendicitis, but with the hope of sounding a warning lest we forget the things we already know only too well, that I take the privilege of bringing such a frequently discussed subject before you.

I am not going to burden you with any of the details of the symptoms, diagnosis, etc., which are familiar to you all, but limit this

paper to a few suggestions to the general practitioner who is called first of all to see a patient with "acute indigestion" or "a pain in the stomach."

When we remember that the appendix is by far the most frequent cause of so-called "indigestion" or abdominal pain, it is of paramount importance that disease of this organ be eliminated before any medical treatment, such as purgatives, dietary, etc., be instigated. Any abdominal pain, except due to traumatism, known poisoning, etc., should call for absolute rest and elimination of everything by mouth, until a definite diagnosis is established. The diagnosis of the usual case of appendicitis is, as a rule, exceptionally easy and for this reason we must look for some other cause of such an appalling unnecessary mortality as we now have from this disease. It is not in the fault of the diagnosis but the treatment. A doctor is called to see a patient with an attack of abdominal pain; nearly always he has had one or more previous attacks very much of the same nature and rapidly improved following a purgative, often given by some less cautious physician. Why then should this doctor insist on an operation, especially before some medical treatment has been tried? To a patient with a severe attack and excruciating pain it is not very difficult to explain the possibilities of a perforation during such treatment; but to one with a mild attack it is often very hard. The question now arises, when should surgery be insisted on and when should medical treatment be resorted to? We know that with the best and most careful medical regime about 10 per cent of all cases will terminate in a perforation. Where then, can be the justification of such a treatment unless the dangers of surgery out-weigh the 10 per cent; and we know that the results of a so-called "clean" operation are almost 100 per cent perfect. Whether or not the present attack will subside or perforate is, of course, a matter of judgment and has to be decided by the physician at the time.

If an operation be decided upon even though the case seems mild, there is no advantage in not considering it an emergency case. All food and water should be stopped and the patient given a hypodermic of morphia—but never the morphia until after the operation is agreed upon or there is some contraindication to surgery. I once heard a surgeon say that any doc-

*Read before the Southwestern Virginia Medical Society, at Pulaski, Va., March 26-27, 1925.

tor who would give a purgative to a patient with appendicitis was nothing short of a criminal. Perhaps that is putting it a bit strong, but certainly the one who masks nature's warnings with morphine without first being assured that the patient is willing for an operation is no less guilty. Pain is the greatest protection we have to human health and life; indeed, it is often the only thing that will bring a patient to the operating table. I once saw a case of peritonitis following a perforation absolutely refuse an operation until the effects of a hastily given hypodermic had worn off, after which, when a second one was denied, she was positive an operation was the only thing to be considered. Please do not misunderstand me; I am not condemning morphine in the treatment of appendicitis; indeed, it is the most valuable drug we have in this condition. The objection to it here may be applied equally as well to many other conditions; it is dangerous only in that it may mask symptoms which, if not interfered with, would bring the patient to a life-saving operation. Perhaps doctors in the cities have little trouble in getting patients to follow out their advice, but in the rural districts where a morbid fear of the word hospital still exists, the question of a method of convincing a patient an operation is necessary often becomes of paramount importance; and until these people are educated to what is and what is not a dangerous or necessary operation, it is our duty at least to refrain from interfering with nature's time-tried method.

In conclusion, let us say that although the diagnosis is occasionally at fault, there is little question but that the treatment is the chief source of error causing the high mortality which now exists. Appendicitis is a true surgical condition, and until the medical profession realizes this and discontinues dangerous and often futile attempts to treat it by any other method, the death rate will remain the same as it has for the past many years.

New Altamont Hospital.

Some ships go East and some go West,
 Whilst the self-same wind doth blow,
 For it's rudder and sail, and not the gale,
 Decide where the ship shall go.
 Nor wind, nor gale, control our fate,
 As we journey along through life;
 It's the set of the soul decides the goal,
 And not the calm nor the strife.

—*Wilcor.*

EARLY REMOVAL OF DRAINAGE IN ACUTE, PERFORATIVE, GANGRENOUS APPENDICITIS WITH PERITONITIS, WITH ANALYSIS OF 100 CASES.*

By S. S. GALE, A. B., M. D., F. A. C. S., Roanoke, Va.

While the method that we have adopted in handling these cases is original as far as we are concerned, upon reviewing the literature we found that Moynihan and Yates had done considerable experimental work on dogs to see just how long a drain in the peritoneal cavity actually drained, and from their experimental work they proved that a drain was practically completely walled off from the rest of the peritoneal cavity within twelve hours.

We have never done any experimental work along this line but some six or seven years ago my associate, Dr. Whitman, and I began to remove drainage tubes in perforative, gangrenous appendicitis, with peritonitis, within a few days, and as the results were good and we gained more experience we began to remove the tubes within from twenty-four to thirty-six hours, rarely leaving a drain in longer than seventy-two hours. We found that a large number of these patients would get well in from nine days to two weeks, and almost without an exception that they would be ready to leave the hospital within two weeks, even though the wound was not entirely healed.

During the latter part of this series of cases we stopped using a rubber tube almost entirely except in a few selected cases, simply using a rubber dam drain with a gauze wick.

It is our belief, based on the teaching of John B. Murphy, that peritoneal infection is taken care of principally by the lymphatics and that as soon as the peritoneal cavity is opened, if the focus of infection, viz., the appendix, is removed, the pus is no longer under pressure, the absorption of pus ceases and is then handled by the lymphatics with the other protective body forces.

Also, during the latter part of this series of cases we have endeavored to cleanse the peritoneal cavity by means of a suction apparatus and then to wash out the peritoneal cavity with warm sterile salt solution, this also being removed with the suction apparatus, following a method which was suggested by Willis, of Richmond. We are inclined to believe that

*Read before meeting of the Tri-State Medical Association of the Carolinas and Virginia, at Greenville, S. C., February 20 and 21, 1924.

this has also helped to shorten the time of recovery, but in my opinion the outstanding feature of this treatment is the removal of the appendix, the removal of pus by a suction apparatus, the insertion of a rubber dam drain, one or two as the case may require, usually a long one going down into the Douglas cul-de-sac, and occasionally a shorter one down to the stump of the appendix, and the complete removal of these drains within seventy-two hours, at the outside.

Below is a brief analysis of these cases:

Total Number of Cases.....	100
Males	68
Females	32
Oldest Patient	64 yrs.
Youngest Patient	8 yrs.
Average Age	28½ yrs.
Highest Leucocyte Count	32,600
Lowest Leucocyte Count	8,000
Average Leucocyte Count	17,625
McBurney Incision	80
Right Rectus Incision	20
Time Sick Before Operation	

From 6 hrs. to 3 wks.

Average Time Sick Before Operation 3 days
We sent out 100 questionnaires and received replies from eighty.

Eight of these cases had hernias, 10 per cent.

Out of twenty right rectus incisions, two developed hernia.

Out of eighty McBurney incisions, six developed hernia.

In the eight hernia cases tube was removed, two on fourth day, four on sixth day, one on twelfth day, one on fourteenth day.

Average number of days tube stayed in, seven days.

Note that in one case tube stayed in twelve days, and in one case fourteen days. Undoubtedly tube stayed in these cases too long. Note that no hernia developed in any case in which tube was removed prior to the fourth day.

Note difference in stay in hospital of patients in whom drainage tube was removed early:

Drain removed third day, nineteen cases. Average number of days in hospitals fourteen and one-half.

Drain removed fourth day, seventeen cases. Average number of days in hospital, seventeen and one-half.

Note these patients stayed in hospital three days longer than patients with drain removed on third day.

Drain removed fifth day, ten cases. Average number days in hospital twenty-one.

Note these patients stayed in hospital three and one-half days longer than patients with drain removed on fourth day.

Apparently for every additional day drainage tube remains in three days are added to time patient stays in hospital.

Number of patients in hospital under twenty-one days	60
Average removal of tubes	5 days
Average stay in hospital	16 days
Complications in 100 cases.....	13
Pneumonia	6
Acute septic nephritis	1
Unhealed sinus	1
Phlebitis	1
Intestinal obstruction	2
Peritonitis that caused death.....	2

Number cases appendix not removed....3

Number of deaths 6 |

Mortality

 6% |

Cause of Death:

1. Patient died from acute nephritis on sixteenth day. Tube removed on fourth day.

2. Patient died from general peritonitis less than twenty-four hours after admission.

3. Patient died from general peritonitis twenty-four hours after operation.

4. Patient, six months pregnant, had been sick five days. Delivered of dead foetus. Had double pneumonia. Died two days after operation from double pneumonia, pregnancy complicating.

5. Patient died from obstruction eleven days after operation. Tube removed on fourth day.

6. Patient died from pneumonia on twentieth day after operation. Tube removed on second day.

Lewis-Gale Hospital.

THE RELATION OF THROAT INFECTIONS TO ACUTE NEPHRITIS.*

By ESTILL L. CAUDILL, M. D., Narrows, Va.

There has occurred in Giles County within the last few weeks an unusually large number of cases of acute nephritis following throat infections.

*Read before the Southwestern Virginia Medical Society, at Pulaski, Va., March 26-27, 1925.

The structures of the mouth and upper air passages are peculiarly exposed to infection. The great variety of pathogenic micro-organisms that are present in the saliva and pharyngeal mucus constitute a universal danger of infection. The most trifling lesion of the mucous membrane serves as the point of entrance to deeper structures. Enlarged tonsils and hypertrophy of the adenoid and other lymphoid tissue of the naso-pharynx interfere with respiration and drainage and favor infection of these structures.

Members of the streptococcus-pneumococcus group have been shown to be present in the throats of a large number of individuals apparently in good health. They vary greatly in virulence. The virulence increases under conditions favorable to luxuriant growth. Any condition lowering the natural resistance of the body favors systemic infection.

There has been a feeling among certain workers that bacteria have an affinity for certain organs. Bumpuss and Misser have recovered streptococci viridans from the teeth and tonsils of certain patients with nephritis and found that these organisms upon injection into rabbits produced lesions in the rabbit's kidneys. They considered that the infections in the kidneys in man may come from infections elsewhere in the body with organisms which have a special affinity for the urinary tract.

That there is a temporary bacteriaemia following throat infections, and that the infection reaches the kidney through the blood stream is no longer doubted. The presence of typhoid bacilli in the urine of patients suffering with typhoid, and tubercle bacilli in patients with pulmonary tuberculosis, but with no renal lesions, is evident proof that these infections are of hematogenous origin.

Bumpuss and Misser have inoculated eighty-two animals with streptococci taken from the teeth and tonsils of patients suffering with pyelonephritis, and in sixty-three of these animals lesions of the kidney were found. They believe that pyelonephritis is often due to local infection containing streptococci, which have a selective affinity for the urinary tract, and that the colon bacillus, which is commonly present, is only a secondary infection.

Hayden, in a more recent article, reports his findings on the injection of twenty-eight rabbits with cultures taken from patients suffer-

ing with nephritis, 89 per cent of these animals showing gross kidney lesions.

James, of Boston, in studying fifty-eight cases of acute nephritis in children, gave tonsillitis as the etiology in twenty-two cases. In eight cases of acute nephritis seen in my practice in the last few weeks, tonsillitis preceded the onset of urinary symptoms from three days to two weeks. In most of these cases the throat infection was apparently mild, and a physician was not called until the symptoms of nephritis developed.

I wish to report the following cases:

Case 1.—Mrs. D., housewife, age thirty-one. Has four living children. Has had no severe illness but has had recurrent attacks of tonsillitis. On January 15th, she was taken with sore throat, chills and aching in head and limbs. States that she had white spots on tonsils. Did not have a physician. Sore throat lasted for several days. On January 20th, five days after onset of tonsillitis, she began suffering with severe pain in head and back of neck, had dizziness and blurred vision. At this time there was swelling of face and eyelids. Had insomnia, nausea and vomiting. The edema soon became general, involving the entire body. The pain in the head and back of neck became so severe that morphine was required for relief. The systolic blood pressure was 160. Urine was scanty, at first not over four ounces in twenty-four hours, and contained a large amount of albumen, pus and casts. For three days there were threatening uremic convulsions. The convalescence has been slow, and at the present time the urine contains a light cloud of albumen.

Case 2.—Fred R., male, age fourteen. Has had pneumonia four times. Had measles and whooping cough two years ago. Has had recurrent attacks of tonsillitis. Last attack February 2nd, which lasted for several days. February 5th, swelling was noticed in the face and eyelids. February 8th, was admitted to hospital with uremic convulsions. Had three violent convulsions within one hour before admittance. There was general edema, nausea and vomiting. The tonsils were enlarged and acutely inflamed. The urine was very scanty and contained large amount of albumen and casts. The acute symptoms soon subsided and the patient has made a good recovery.

Case 3.—Mrs. J., housewife, age fifty. Had never had any severe illness. On May 1st, de-

veloped a severe sore throat with chills and aching in limbs and back. On May 2nd, the temperature was 106 and pulse 130. A greyish membrane covered the tonsils and upper pharynx. Urination was frequent and painful. The urine contained red blood, later pus and casts. There was swelling of the face and lower extremities. The joints became swollen and painful. Several days afterwards deep seated abscesses developed along the course of the long bones in the lower legs, later extending to both thighs. A large amount of greenish pus was drained from both legs. Multiple abscesses occurred over the body, and the patient died June 22nd with a general systemic infection.

No acute infection, however mild or limited, is without the possibility of a complicating nephritis.

TRAUMATIC APPENDICITIS.*

By CHARLES H. LUPTON, M. D., Norfolk, Va.

In searching the literature it is apparent that traumatic appendicitis is very rarely reported and from the articles written there seems to be much doubt in the minds of a large majority if traumatic appendicitis really ever occurs. Most men agree that trauma to the abdominal wall may cause an exacerbation of an already diseased appendix, but not many can conceive how it is possible for appendicitis to develop from an injury provided the appendix was normal at the time of the accident. This latter class will be the one discussed in this paper.

Whether an injury or blow to the abdominal wall will cause an injury to the abdominal viscera will depend upon many factors, the force of the blow, the thickness of the abdominal wall, whether the abdominal muscles are under tension or relaxed, and the kind of object producing the injury. It is possible to produce injury to the abdominal wall without injury to the viscera, especially if the muscles are strongly contracted; on the other hand, it is possible to produce injury to the viscera (bruises, rupture, etc.) without evident injury to the abdominal wall if the muscles were completely relaxed. The extent of the injury will vary according to the thickness of the abdominal wall and the force and character of the trauma.

All agree that a severe blow to the abdomen will cause rupture of the intestines, etc., but not

many can conceive how it is possible to produce injury to the appendix as it is situated so far posteriorly and is so freely movable. In considering the position of the appendix, we must remember that the body varies considerably even though the base occupies practically always the same position. Appendicitis is due to bacterial infection, but we must remember that the appendix normally harbors bacteria, and does not become infected unless its resistance is lowered in some way and permits normally inactive bacteria to gain entrance to the wall of the appendix. Anything that interferes with the emptying power of the appendix would lower its resistance, and any bruise, however slight, might produce this very effect, thereby permitting infection to take place. An injury, to produce traumatic appendicitis, does not necessarily have to produce rupture or even marked laceration of the appendix. It is only necessary to bruise or over-distend the appendix to interfere with its function, which in turn will give opportunity to bacteria normally inactive to become active and produce appendicitis. The viscera nearest the abdominal wall are not the organs necessarily injured in an accident, as is often observed.

If traumatic appendicitis was a common condition, it would seldom be observed by the surgeon, who only operates after the inflammation has progressed enough to present symptoms necessitating operative procedures, and by that time any bruise or small laceration would be entirely obscured by the swollen and inflamed condition of the appendix.

If an individual, who is in good health and has never complained of attacks of abdominal pain or any symptoms that would remind us of a diseased appendix, receives an injury to the abdomen, and symptoms of appendicitis develop immediately or slowly thereafter, and the operator observes a bruised condition of the abdominal wall and a bruised condition of the large intestine near the attachment of the appendix, with an acutely inflamed appendix with no adhesions and without the appearance of previous trouble, then we could not be justified in forming any other opinion but that the injury was the exciting cause of the appendicitis. Most text-books, in discussing traumatic appendicitis, conclude the subject by saying it cannot happen. They do not offer satisfactory explanations why it cannot happen. If you will concede that the appendix is not immune

*Read before the Norfolk County Medical Society, May 12, 1924.

to injury, and I hardly see how anyone can say that any part of the body is immune, then you will have to admit that appendicitis may develop following a bruise, laceration or overdistention. It is an every-day observation that bruises or injuries predispose to infection. I believe traumatic appendicitis following immediately after an injury to be an extremely rare condition, because, if there was enough injury to the appendix to cause infection to take place within a few hours, there would in all probability be enough injury to the other parts of viscera to entirely mask the appendicitis. On the other hand, a bruise or overdistention which interferes with the function of the appendix and lowers its resistance and permits infection to take place slowly is not as uncommon as many believe.

Some text-books, in discussing this subject, state if trauma will cause appendicitis that it should be able to cause typhoid fever. I cannot see any comparison between the two conditions. We know that the appendix harbors bacteria at all times, but does not become infected unless its function is interfered with or its resistance lowered in some way. On the other hand, the only people who do not develop typhoid fever when the bacillus is taken into the system are those who are naturally immune, as typhoid carriers or those who have been made artificially immune by typhoid vaccine.

REPORT OF A CASE

W. R. R., aged twenty-six, white, male, who had previously been in excellent health and had never suffered from any attacks of abdominal pain, indigestion or any symptoms that were referred to the intestinal tract, was struck by an automobile, which knocked him against the rear of a wagon on July 11, 1923. He sustained injuries to the anterior of both thighs and to the abdomen, and was also shocked and dazed for a few minutes. After a few minutes he did not suffer from any symptoms except pain from the bruises of the thighs, which was rather marked, and a slight pain in the abdomen. He did not deem his condition serious enough to consult a physician until the next day when he came to see me. On examination, I found a bruised condition of the anterior of both thighs, and the abdomen was slightly sensitive, but almost as much to superficial as to deep pressure. At that time there was no apparent bruise to the abdomen, but he was advised to

keep as quiet as possible, stay on a soft diet, take no purgatives, and to inform me if he should develop any more trouble. From the examination there did not appear to be any serious injury to the abdominal viscera. On July 14th, he returned to my office complaining of slightly more pain and tenderness in the abdomen. Examination revealed slightly more tenderness than at the first examination, and a little rigidity. Neither tenderness nor rigidity were present in any marked degree. He was advised to go to bed, use an ice-bag on the abdomen and stay on a soft diet. His symptoms did not progress any under this palliative treatment until July 18th when he complained of more pain in the right abdomen. Rigidity and tenderness were greater than at the previous examinations and he had a temperature of 99. He was advised to remain in bed and follow previous instructions. I saw him again the next day and his condition had become aggravated. On the morning of July 20th, about two A. M., I was called to see him and found his condition growing decidedly worse, with symptoms of localizing peritonitis on the right side. Rigidity and tenderness had increased and were most marked at McBurney's point and immediately above. I sent him to the hospital early that morning. A leucocyte count was made which showed 21,000 cells, with 84 per cent polymorphonuclears. Urinalysis was negative. He was tender to very slight pressure and kept his knees flexed on his abdomen. Laparotomy was decided upon and a pre-operative diagnosis of intestinal injury with localized peritonitis on the right side was made. I did a right rectus incision and found the following conditions present: there was a bruised condition of the abdominal muscles through the entire wall; bruise to the ascending colon at and immediately above the ileocecal junction and the appendix was acutely inflamed. The appendix was not simply congested, but infected. There were no bands, or adhesions, or evidences of previous trouble. The appendix was removed and he made an uneventful recovery.

SUMMARY

I believe this to be a case of appendicitis which was undoubtedly precipitated by the injury; not the kind of a case that is usually referred to in literature as traumatic appendicitis, where they usually speak of trauma only

in the sense of producing enough injury to rupture or severely lacerate the appendix so that symptoms would develop immediately, but a bruised and over-distended condition of the appendix which caused infection to take place gradually. When the accident occurred, the colon was struck suddenly, forcing some of its contents into the appendix, over-distending it, and diminishing its blood supply, thereby lowering its resistance and permitting those normally inactive bacteria to become active and gain entrance to the wall of the appendix. This evidently is a true case where lowered resistance caused infection to take place. In these cases it is to be expected that the symptoms will develop slowly and gradually.

His back was in apposition to the approaching automobile when the accident occurred, and, of course, he was unaware of impending danger; therefore, the abdominal muscles were relaxed, which would account for the internal injuries, with so little external evidence of such injury.

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New Monroe Building.

THE DEVIL'S MASQUE—A DREAM.*

By ROY K. FLANNAGAN, M. D., Richmond, Va.
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FOREWORD

The following fantasy is written in the hope that the terrible social situation it depicts may in this graphic form find a wider circulation and consequently stir larger numbers to thought and action on the grave problem of combating the Venereal Peril—a racial cancer to whose presence the bulk of the medical profession is still passive, and the general public in so far as it is informed covers up and leaves it alone.

The attitude of the average physician toward reporting venereal disease, if due to a supposed allegiance to the Hippocratic Oath, is so undoubtedly by reason of a misapprehension of that document. The ethics of the Father of Medicine were of too high a character for that document to bear any such meaning. Hippo-

crates' admonition to those who practice the healing art, not to gossip about their patients, cannot without violence to his standards, be used as a warrant to conceal from proper health authorities the presence of diseases that threaten the very foundations of society.

The tendency on the part of many physicians to withhold from health authorities all information concerning syphilis and gonorrhea in their practice, as well as suspicious cases of other contagious diseases, if persisted in can only accentuate the feeling now growing in the public mind that the medical profession and the Public Health have but little in common. It is beginning to be felt that the health of the public is a layman's matter and must be administered by laymen if Disease, the basis of the doctor's livelihood, is to be conquered. Can it be possible that physicians in any great number are willing that such a feeling be hardened into conviction? This will undoubtedly be the case if more active support of health measures is not given by them.

In regard to certain allusions found in the *Masque*, it may be said that there are few physicians and druggists who will be disposed to dispute the implication found in the "Ode of the Damned Young Men" that the unmarried virtuous male is a "rara avis" and that the venereally diseased, married and single one is by no means uncommon.

Social workers and clinicians can, if they will, testify to the awful ravages of venereal disease among prostitutes and loose women generally. Those who work with the mentally defective will without doubt agree with the "Ancient Sisterhood" in their strictures upon mankind, as well as in their generous thought for the throngs of feeble-minded among their number.

It is not likely that any gynaecologist will be found to combat the indictment found in the "Wail of the Unsexed," and to comment upon the brief "Song of the Completely Unfit" is superfluous.

For the physician, however, not to give his most unselfish and serious thought to ways and means of reducing the number of these derelicts is for him to fail in the first responsibility of knowledge. He is in the position of a leader by reason of his first-hand acquaintance with the problem. Surely he will not default on that leadership!

*Read before the Richmond Academy of Medicine, May, 1925.

THE DEVIL'S MASQUE

A DREAM—TIME, A. D., 1918.

PROLOGUE

A clinic physician of learning and light,
Assigned to venereal control,
Lay down on his bed one hot midsummer night,
Worn out both in body and soul.

The scenes of the day fast revolved through his head,
For women and men by the score;
Their bodies diseased, their self-respect dead
Had thronged through his hospital door.

These passed in review through his over-wrought
brain
A tragic continuous stream,
Until when it seemed that he must go insane
Came a vivid and terrible dream.

THE SCENE

The scene of the vision was lurid with glare,
A vast and cavernous domain.
On a throne-like escarpment approached by a stair,
Sat the patron of woe and of pain.

Before him was gathered a polyglot throng,
From all of the war-ridden states;
From hell upon earth the dark Lord of all wrong
Brought those who obeyed his mandates.

'Twas Satan at home in his central abode
Who, musing on matters mundane,
Had called in his travelling imps from the road,
To check up his loss and his gain.

THE DILEMMA.

He found that his profits exceeded by far
His losses in nineteen eighteen,
The nations of earth engaged in the war,
Sent crowds such as he'd never seen.

But a large force of devils with nothing to do
And hell filling up to the brim,
Gave Satan a task to dispose of his crew
To prevent pandemonium grim.

Then one of the boldest young imps of them all
Said, "Sire, now that war does our work,
Please start up a movie, or give us a ball
To amuse us while down in this murk."

THE ORDER

The idea appealing, the satanic mind
Determined at once on a play.
He called an old author and told him to find
Something good to produce right away.

The playwright then asked and was given the power
To tap the resources of Hell.
He sent out the devils and told them to scour
The depths, and attendance compel.

Advantage he had over former assays,
Unique the advantage you'll see.
While play-actors usually all have to seem,
His now had but simply to be.

THE CAST

The inmates of Hell are tragedians all,
And need no assistance from art.
Deceptions of Earth now no longer enthrall,
No need now to act any part.

The dramatist had but to gather his cast,
And teach them to march forth in line,
Stir listless and weak ones to tell of their past,
And respond when he gave them the sign.

The curtain rang up to the cheers of the throng,
Upon a vast platform there strode
A troop of young men slowly stalking along,
And solemnly chanting this ode.

ODE OF THE DAMNED YOUNG MEN.

We represent man,
The every day man,
Who loves and who leaves
But takes what he can.

We sought after fun,
Each sad mother's son.
We took our full share,
But now we are done.

No virtue had we,
Our bodies were free
(Mankind in the mass,
In morals agree.)

But this was not all,
The fruit of the fall,
In most of our troop
Was bitterest gall.

Venereal disease
Molested our ease;
We drank Vice's cup
And came to the lees.

Our efforts at cure
Of this horror impure,
Were doubtful or vain,
We did not make sure.

We married at last,
And stand now aghast,
We brought to our homes
This blight from the past.

We fired a train
Of illness and pain,
And left to our sons
The black brand of Cain.

Fair tribute to Hell
We properly dwell
In Plutonic Shades
And do not rebel.

We state thus our case,
And now yield our place
To those "lights of love"
We led in the race.

THE SISTERS OF SORROW

This crowd of young rouses then passed out of sight
And next on the stage there appeared
A concourse of women resentful and white
With a song most courageous and weird.

Fair Helen of Greece, Messalina of Rome,
Cleopatra and Catherine the Great
Rubbied elbows with harlots from Paris and Nome
In a chorus of satire and hate.

Now some of them sang in a sad monotone
And others with anger were shrill,
A few broke the chant with a laugh or a groan,
While many were silent and still.

SONG OF THE ANCIENT SISTERHOOD.

We are the Ancient Sisterhood
Whose heart and head and hand
Have had their part in history,
Since Pharaoh ruled his land.

We "wise ones" have no just complaint,
We took our chance with fate,
We chose our course we had our joy
With many, many a mate.

And when the inevitable blight
And blood taint came to us
We passed it on to those young blades
So gayly amorous.

And thus the score was evened up
As far as we're concerned,
But look at these poor feeble souls!
What Hell have these girls earned?

Who have no minds, who are but babes
The prey of bestial man.
They lack the will to fight him off
So yield him all they can.

Now yet again—what sport is there
In chasing silly sheep,
You devils ought to be ashamed
To take your fun so cheap!

Why, only folks on Earth do that,
Poor spineless, lecherous men,
Shall Hell's own royal messengers
Deal thus with women then?

And now we take ourselves from view
And give our place to those
Whose pangs on Earth have far outmatched
The worst of Satan's woes.

DERELICTS OF DISEASE.

Then slowly across the broad platform there came
A limping and stumbling array
Of women, pale, wizened, dejected and lame
And loath to take part in the play.

Young wives were they all when they lived upon
Earth
Where, bright and as happy as birds,
They yielded their lives amid revel and mirth
To the honey-sweet magic of words.

The unrestrained past of their husbands had brought
Its crop of wild oats to their door.
Venereal sickness though dormant had wrought
Red ruin that none could restore.

They garnered ill health and they suffered neglect
No babes to their arms ever came
Their bodies unsexed and their happiness wrecked
They stand now immune to the flame.

With sighing and tears and with many a moan
And futile attempts at control,
They chant in a low pitched tremulous tone
This wail from the depth of the soul.

THE WAIL OF THE UNSEXED.

We have passed out of life
With its turmoil and strife
To Satan's dire, hateful abode,
But the sadness and pain
That we now must sustain
Has not added aught to our load.

From our earliest years
We had freedom from tears,
Our paths were with primroses gay;
So with dance and with song
Fashion bore us along,
No clouds ever darkened our day.

But the men of our set
Caught us soon in the net
Of marriage, the goal of our kind
Our fond parents cared not
Whether roue or sot,
If station and gold he could find.

The young men whom we chose
Were all taken from those
With hearts only bent upon fun
They had gone "down the line"
With lewd women and wine,
Forgetting the girls they had won.

(The disease of the slum
To the palace will come,
When men from the palace go down
To the red lighted way
With its denizens gay
Secluded but always in town.)

So we reaped what they sowed
And upon the long road
Of Eternity's darkness we drift,
He who gave us our name
Gave us also our shame
And Hell was bestowed with the gift.

ULTIMATE RUIN.

Sad wraiths! these then moved to their place in
the dark
And out from the doors at the side,
A crowd which e'en stirred in the audience a spark
Of compassion came on like a tide.

Poor babes blind from birth were borne feebly along
By idiots crippled and scarred,
While diseased and insane unite in a song
With the crime-stained ancestrally marred.

SONG OF THE COMPLETELY UNFIT.

Through ages on ages
In Earth and in Hell,
While man's passion rages,
Is sounded our knell.

Mad lust and infection
Have blackened us all,
Man's darkest defection
Accounts for the pall.

Thus blasted and broken
By prenatal blight,
Our doom thus was spoken,
"Go forth to the night!"

The Earth had no treasure
That we could employ
And Heav'n has no pleasure
That we can enjoy.

No place in the world,
No place in the sky,
To Hell we are hurled
The day that we die.

Then slowly and sadly this throng moved off stage
Mid silence profound and complete,

The imps sat there quiet, it seem for an age
E're anyone moved from his seat.

The bold little devil who issued the call
For a play to instruct and amuse,
Then 'rose to his feet and thus spoke to them all,
In an effort to banish their blues.

THE PROTEST OF THE IMPS.

Now Imps of Satan you have seen
The Masque of Crimson Sin,
What do you think of this black thing
We are charged with dabbling in?

Must foul disease our ally be
To furnish fuel here?
Can we not find a cleaner tool.
Upon a sin-struck sphere?

Shall we take part in harlotry
Or harry helpless maids,
And chase poor feeble-minded waifs
Like human renegades?

Does our success depend upon
Poor sportsmanship and lust?
It is not true, and we protest
The charge is most unjust.

Let's send the word to ends of Earth,
To men where'er they dwell,
That they may know of some vile deeds
Discountenanced in Hell.

With one accord they shouted "aye"
In tones so loud and clear,
That every man and maid on Earth
It seemed must surely hear.

ENVOI.

The sleeping doctor with a start
Awoke to heavy toil;
But with a brighter spirit far
He faced the day's turmoil.

Renewed in courage, strong in faith
That right would rule sometime,
Since imps of Hell themselves reject
Man's darkest social crime.

State Office Building.

CONGENITAL SYPHILIS OF THE LARYNX IN CHILDREN—WITH REPORT OF CASE.*

By ELBYRNE G. GILL, M. D., Roanoke, Va.

Syphilis of the larynx is estimated as comprising from 1 to 15 per cent of all cases of syphilis. Its occurrence in the pharynx is given as about 10 per cent and in the nose as nearly 3 per cent. About one-fifth of all the cases of syphilis appear, therefore, to affect some portion of the upper respiratory tract.

Acquired syphilis of the larynx occurs most frequently between the twentieth and fiftieth years of life. In the congenital form it ap-

pears either in the first few months of life or about the age of puberty, most frequently during the first few months. When it occurs soon after birth the lesions are usually secondary. If the secondary stage is completed *in utero*, the disease may only become manifest in the third stage after the lapse of several (usually from two to fifteen) years.¹

Laryngitis of late hereditary syphilis is quite rare and is likely to be overlooked because of the difficulties in the way of a thorough examination and because the disease is usually painless. Strouss has collected fourteen cases between the ages of three and fifteen years and added three of his own. The parts most frequently affected are: first, the epiglottis; second, the aryteno-epiglottic folds; third, the posterior laryngeal wall.²

The symptoms are those of chronic laryngitis, hoarseness, sometimes aphonia, and in a few cases chronic laryngeal stenosis.

Differential Diagnosis: The two diseases for which this condition is most likely to be mistaken are malignant growths and tuberculosis of the larynx. Age of the patient would in a measure eliminate malignancy. Tuberculosis of the larynx is rarely primary; more usually it is secondary to pulmonary tuberculosis. Syphilis can be diagnosed by manifestations of syphilis elsewhere in the body, as well as by the Wassermann and therapeutic tests.

REPORT OF CASE

B. J., age twelve years, male, school boy, consulted me for the first time, November 29, 1924.

Chief Complaint.—For past eight or nine months patient's speech has been impaired; he sleeps with mouth open, and has difficulty in breathing, especially at nights.

Personal History.—The patient was the second of six healthy brothers and sisters. Has had chicken pox, measles, mumps, scarlet fever, influenza (twice). History otherwise negative.

Family History.—Father, age forty-seven, living and well. Mother died two years ago, aged thirty-seven, her trouble having been diagnosed sometime previously by the family physician as well as by a laryngologist as cancer of the larynx.

Her case was then referred to X-ray specialist for X-ray therapy. She received a number of treatments (about fifty) for this condition. One week before mother's death Wassermann was made, report being 4 plus; treatment was

*Read before the Southern Section of the American Laryngological, Rhinological and Otolological Society, at Jacksonville, Fla., January 19, 1925.

not given. The supposed malignant growth perforated the larynx and over-lying tissues a few weeks before death of patient, thus forming a fistulous opening. On close questioning, the father admitted having had a chancre twenty years ago. Has not had any treatment. Report of Wassermann test on other members of the family: child (age six) 4 plus, child (age ten) 3 plus, child (age fourteen) 1 plus, and two children (ages unknown) negative.

Physical Examination. — Mouth. Tonsils moderately enlarged but apparently clean; epiglottis is swollen and inflamed; aryteno-epiglottic fold swollen and slightly edematous; left vocal cord markedly swollen and congested. Ear and nose examination all right. Teeth apparently all right. Functional examination of hearing:

Watch	Whisper	Weber	Rinne	Fistula	L. Tone	U. Tone
Right ear	35 in.	30 ft.	Positive	Neg.	C-64	2 Tenths
Left ear	30 in.	30 ft.	Positive	Neg.	C-64	2 Tenths

Eye Examination: Lids and lachrymal apparatus negative. Conjunctiva, palpebral and bulbar negative. Cornea shows numerous dots, pen point to pen head in size, in the substantia propria, grayish white in color and distributed in central two-thirds of cornea, being more dense in pupillary area. No blood vessels or remnants of blood vessels seen in cornea. Anterior chamber of normal depth. Pupils react to light and accommodation. Pupils round and equal in size. Fundus: Lens clear, vitreous clear, disc oval, outlines normal, blood vessels normal, macula and periphery clear. No signs of anterior choroiditis could be found.

Diagnosis.—Keratitis, profunda punctata. Vision 20/40 each eye. Wassermann 4 plus. Chest examination shows normal thoracic outline, respiratory excursions full and free, costophrenic angles clear. Right and left lung clear from apex to base.

Treatment.—The patient was referred to his family physician for anti-luetic treatment, November 30, 1924. The brilliant effects of salvarsan have seldom been more impressed upon me than in this case. A patient with almost complete aphonia and embarrassed respiration was almost well in a week after its use. The patient has now had four doses of neo-salvarsan.

Outcome Examination of Larynx.—Swelling and edema gone and no hoarseness.

Comment.—I have not had time to review the literature completely so as to ascertain the

number of cases of late hereditary syphilis of the larynx in children that have been put on record. During the past two years there have been no cases reviewed by the International Survey of the American Institute of Medicine. This, combined with the scant reference to the subject in our text-books on laryngology, leads me to the opinion that late hereditary syphilis of the larynx in children is a rare condition.

SUMMARY

1. When hoarseness has become progressively worse over a period of nine months, we may be sure that some serious organic disease is present.
2. Absence of the characteristic Hutchinson teeth in children who have passed through the second dentition, also the absence of any ear or eye symptoms which are characteristic of hereditary syphilis.
3. Negative physical examination.
4. Relief of symptoms after the first administration of neo-salvarsan was most unusual.
5. Mother's death was most likely due to syphilis of the larynx. There was no history of miscarriage.

REFERENCES.

1. Ballinger—"Diseases of Ear, Nose and Throat."
2. Holt—"Diseases of Children."

612 MacBain Building.

REPORT OF A CASE OF VINCENT'S ANGINA—WITH TREATMENT.

By R. E. MITCHELL, M. D., Richmond, Va.

Vincent's angina is an uncommon non-virulent, subacute, ulcerative, pseudo-membranous inflammation, which occurs in debilitated and insanitary subjects. It has been proven to be caused by the union of toxins from the spirillum of Vincent and the fusiform bacillus.

The lesions commonly involve one tonsil usually at its upper part, often spreading to the soft palate and the other tonsil or pharynx. It may also spread to the larynx or trachea, several cases having been reported. The lesion is covered with a pseudo-membrane, grayish white in color, surrounded by a red ring of inflammation. There may be, and generally are, several patches of involvement, with no appreciable connection but separated by healthy tissue. The membrane, when an attempt to remove it is made, is found to be granular and cheesy in consistency, with an ulcerative area beneath, which bleeds freely. The membrane returns after forcible removal.

The symptoms vary a great deal from a mild tonsillitis to a very severe ulcerated throat,

profuse glandular enlargement, general malaise, chilly sensations, and temperature as high as 101 to 102.

The diagnosis is made entirely from microscopic examination of a scraping from the lesion, easily made since the germ takes any of the dye stains.

The prognosis is usually good. Recurrences are to be looked for and laryngeal involvements may become quite serious.

The treatment of the past has been applications of tincture of iodine, mercurochrome, solutions of nitrate of silver, zinc sulphate, and, more recently, solutions of salvarsan. These measures have been used with varying results, but have required long drawn out treatments, and some cases have undoubtedly become chronic with no hope of becoming permanently cured. The treatment par excellence and with which this case report chiefly deals is intravenous injections of 1 per cent solution of antimony and potassium tartrate. It seems almost a specific, at least my own experience would seem to justify this assertion.

Mrs. A., twenty-six years of age, married, two children, with history of pellagra one year ago, was attacked with a severe sore throat, chiefly right side, with considerable pain on swallowing and talking. Glands of throat on this side very much enlarged and tender. Her family physician was called in and, finding a membrane, suspected diphtheria and immediately gave her 10,000 units of antitoxin. A swab from her throat was sent to the City Health Department, which later came back negative for diphtheria. On the second day her doctor, not finding her improved, repeated the dose of antitoxin with the same result. The following day I was asked to see the patient and at once suspected Vincent's angina, the picture being typical. A scraping from the lesion was made, which proved positive. On the third day after seeing her, we gave 5 c.c. of 1 per cent solution of tartar emetic, skipping the next day, and repeated the dose on the third day. She immediately began to feel better and when the day arrived for her third treatment all the membrane had disappeared, the adenitis had greatly subsided, and the patient was out of bed and down stairs with her family. She has received three subsequent injections, but clinically she is well.

409 Medical Arts Building.

Correspondence

Senator Mapp's Record in Regard to the de Collard Bill.

TO THE EDITOR:

Today, July 2, 1925, I received a letter from Senator G. Walter Mapp, in which he protests against the record of his connection with the de Collard bill, Senate Bill No. 55, as printed in the communication by me, "Chiropractic and Poropathy," which appeared in the VIRGINIA MEDICAL MONTHLY, June, 1925.

This record is a reproduction of the same record which was used in the campaign of Senator Trinkle, and which was prepared by a lawyer for me for use during the primary in which Senator Trinkle was a candidate for governor. At that time Senator Mapp was not a candidate for a State office, and his name was mentioned only as moving a reconsideration of the bill which had been defeated as an emergency measure. The doctors in the Senate were recorded as voting against the bill only to show how the representatives of the medical profession in the Senate regarded it. The complete records, however, show that while Senator Mapp did move to reconsider this bill after it had been defeated as an emergency measure, he voted against it on its passage.

In justice to Senator Mapp I am glad to make this statement, and trust you will give this letter due prominence.

On two previous occasions I had written to Senator Mapp asking for his record on this matter, but my efforts to secure this information have been overlooked by him until today.

J. SHELTON HORSLEY.

Analyses, Selections, Etc.

Treatment of Chancroid With Tartar Emetic Solution Intravenously.

Herman Goodman, of New York City, proposes the use of solutions of tartar emetic intravenously in the treatment of chancroid, following his experiences with this drug in the tropics in the therapy of granuloma inguinale.

In Goodman's experience, the diagnosis of chancroid most often rests on clinical observation; absence of *Spirocheta pallida* on dark field examination; and absence of the so-called Calimato-bacterium granulomatis of inguinal granuloma. The search for Ducrey bacilli in

smears has not been fruitful, and the utilization of culture methods has not been routine. The Wassermann reaction is of negative aid.

The patients have presented themselves for treatment after extension to the draining glands, and several after ineffective anti-syphilitic treatment. Other patients had been under observation for urethritis because of a purulent discharge exuding from an acquired phimotic prepuce. Goodman uses the actual canterly knife to make a dorsal slit when indicated rather than the cold knife because of the possible danger of opening blood and lymph channels. Local cleanliness with soap and water, and immersion of the affected part in warmed mercuric chloride was insisted upon.

The innovation in treatment is the use intravenously of solutions of tartar emetic or antimony potassium tartrate. The drug is given in concentration of 1:100. A commercial sterilized 1 per cent solution, standardized and biologically tested, contained in 10 c.c. hermetically sealed ampoules has been used. The initial dose intravenously has been 5 c.c. of the 1:100 solution, given once every second day or at longer intervals to once in five days. The number of injections has varied from four to eight. The dose may be increased by 1 c.c. at each injection, but no dose greater than 12 c.c. has been administered. There have been no ill effects.

The use of antimony potassium tartrate in chancroid is recited in case histories. It is hoped that the experiences of others will warrant further publication.—(*Journal of Urology*, 13:489, April, 1925).

Unperforated Ulcers of the Terminal Ileum, Symptomatically Simulating Appendicitis.

In a paper read at the meeting of the American Medical Association before the Section on Surgery, General and Abdominal, May 27, 1925, Dr. J. Shelton Horsley, Richmond, Va., discussed the symptoms of appendicitis. He stated that the appendix has a wide range of locality. When in its normal position the inflamed appendix gives the typical symptoms of pain beginning in the epigastrium or around the navel, with subsequent pain, tenderness and muscle spasm in the right iliac fossa. When abnormally placed it may cause pain and tenderness in the median line, the pubic

region, along the iliac crest or around the gall-bladder. On the other hand, any one of many other diseases may give the symptoms of appendicitis and must be differentiated. Symptoms, however, which are due to a lesion in the intestinal tract near the appendix may closely simulate those of appendicitis and are more difficult to distinguish. The importance of bearing in mind such lesions is emphasized. Operations for appendicitis are sometimes undertaken without due regard for the possibilities of other lesions of the gastro-intestinal tract, and the surgeon should be competent to deal with any other surgical condition that may be present.

Three cases are reported with symptoms of appendicitis having tenderness and muscle spasm in the lower abdomen. A diagnosis of appendicitis was made in each case. In two, at operation a solitary tuberculous ulcer was found in the ileum, and a resection of the terminal ileum with appendectomy was done. The third patient, a boy ten years of age, was admitted to the hospital with a diagnosis of acute appendicitis. At operation the appendix was found to be moderately congested and was removed. The terminal ileum was greatly enlarged and congested. About nine inches of the ileum and the cecum and part of the ascending colon were resected. Grossly the lesion appeared to be tuberculous, but careful microscopic study showed the tissue to be simple inflammatory. All three cases made a satisfactory recovery.

The technic of resection of the terminal ileum is discussed. The method to be used depends largely upon the local conditions. The active peristalsis and the small amount of bacteria in the upper jejunum demand different methods of procedure from those indicated in the more slowly acting ileum whose contents are filled with bacteria. Thus, in the lower ileum it is important to use a technic which will prevent contamination, even though it gives a smaller lumen of the bowel, while in the upper jejunum with fewer bacteria the importance of an ample caliber dominates the situation. The technic of Kerr is excellent in many of these cases of resection of the lower ileum, but when there is much fat a lateral anastomosis should be done. If there has been obstruction or if the cecum and colon are included in the resection, an enterostomy with a soft rubber catheter seems indicated.

The Truth About Medicine

In addition to the articles enumerated in our letter of April 30, 1925, the following have been accepted:

Lederle Antitoxin Laboratories

Poison Ivy Extract—Lederle (In Almond Oil)

Poison Ivy Extract—Lederle (In Almond Oil), 1 c.c.

Rabies Vaccine—Lederle (Semple Method)

H. K. Mulford Company

Ash Tree Pollen Dried—Mulford; Berinuda Grass

Pollen Dried—Mulford; Box Elder Pollen Dried

—Mulford; Canary Grass Pollen Dried—Mul-

ford; Careless Weed Pollen Dried—Mulford;

Cocklebur Pollen Dried—Mulford; Corn Pollen

Dried—Mulford; Cottonwood Pollen Dried—Mul-

ford; Daisy Pollen Dried—Mulford; Dandelion

Pollen Dried—Mulford; Dock Pollen Dried—Mul-

ford; False Ragweed Pollen Dried—Mulford;

Goldenrod Pollen Dried—Mulford; High Rag-

weed Pollen Dried—Mulford; Johnson Grass

Pollen Dried—Mulford; June Grass Pollen Dried

—Mulford; Lamb's Quarters Pollen Dried—Mul-

ford; Low Ragweed Pollen Dried—Mulford; Ma-

ple Pollen Dried—Mulford; Marsh Elder Pollen

Dried—Mulford; Mountain Cedar Pollen Dried—

Mulford; Mugwort Pollen Dried—Mulford; Oak

Tree Pollen Dried—Mulford; Orchard Grass

Pollen Dried—Mulford; Perennial Rye Grass

Pollen Dried—Mulford; Plantain Pollen Dried—

Mulford; Redroot Pigweed Pollen Dried—Mul-

ford; Redtop Pollen Dried—Mulford; Russian

Thistle Pollen Dried—Mulford; Rye Pollen Dried

—Mulford; Sagebrush Pollen Dried—Mulford;

Shad Scale Pollen Dried—Mulford; Sheep Sorrel

Pollen Dried—Mulford; Slender Ragweed Pollen

Dried—Mulford; Sugar Beet Pollen Dried—Mul-

ford; Sunflower Pollen Dried—Mulford; Sweet

Vernal Grass Pollen Dried—Mulford; Timothy

Pollen Dried—Mulford; Velvet Grass Pollen

Dried—Mulford; Walnut Tree Pollen Dried—

Mulford; Western Ragweed Pollen Dried—Mul-

ford; Wormwood Pollen Dried—Mulford.

Insulin—Mulford

Insulin—Mulford; 10 units, 5 c.c.

Insulin—Mulford; 20 units, 5 c.c.

Insulin—Mulford; 40 units, 5 c.c.

Parke, Davis & Co.

Typhoid Vaccine (Prophylactic) 30 c.c.

Typhoid Paratyphoid Vaccine (Prophylactic) 30 c.c.

Powers-Weightman-Rosengarten Co.

Stovarsol

Stovarsol Tablets 0.25 Gm.

Swan-Myers Co.

Annual Sage Concentrated Pollen Extract—Swan-

Myers; Ash Concentrated Pollen Extract—Swan-

Myers; Black Walnut Concentrated Pollen Ex-

tract—Swan-Myers; Blue Grass Concentrated

Pollen Extract—Swan-Myers; Box Elder Con-

centrated Pollen Extract—Swan-Myers; Buck-

horn Concentrated Pollen Extract—Swan-Myers;

Burweed Marsh Elder Concentrated Pollen Ex-

tract—Swan-Myers; Cocklebur Concentrated

Pollen Extract—Swan-Myers; Corn Concentrated

Pollen Extract—Swan-Myers; Cottonwood Con-

centrated Pollen Extract—Swan-Myers; False

Ragweed Concentrated Pollen Extract—Swan-

Myers; Giant Ragweed Concentrated Pollen Ex-

tract—Swan-Myers; Goldenrod Concentrated

Pollen Extract—Swan-Myers; Hemp Concen-

trated Pollen Extract—Swan-Myers; Hickory

Concentrated Pollen Extract—Swan-Myers; Lamb's Quarters Concentrated Pollen Extract—Swan-Myers; Marsh Elder Concentrated Pollen Extract—Swan-Myers; Mugwort Concentrated Pollen Extract—Swan-Myers; Oak Concentrated Pollen Extract—Swan-Myers; Orchard Grass Concentrated Pollen Extract—Swan-Myers; Prairie Sage Concentrated Pollen Extract—Swan-Myers; Quailbrush Concentrated Pollen Extract—Swan-Myers; Red Sorrel Concentrated Pollen Extract—Swan-Myers; Redtop Concentrated Pollen Extract—Swan-Myers; Russian Thistle Concentrated Pollen Extract—Swan-Myers; Sagebrush Concentrated Pollen Extract—Swan-Myers; Short Ragweed Concentrated Pollen Extract—Swan-Myers; Slender False Ragweed Concentrated Pollen Extract—Swan-Myers; Southern Ragweed Concentrated Pollen Extract—Swan-Myers; Spiny Amaranth Concentrated Pollen Extract—Swan-Myers; Sudan Grass Concentrated Pollen Extract—Swan-Myers; Sycamore Concentrated Pollen Extract—Swan-Myers; Timothy Concentrated Pollen Extract—Swan-Myers; Western Ragweed Concentrated Pollen Extract—Swan-Myers; Western Water Hemp Concentrated Pollen Extract—Swan-Myers.

Change of Agency.

Sulfarsenol, formerly distributed by Charles Leich and Co., is now distributed by the Anglo-French Drug Co., which supplies .06, .12, .18, .30, .42, .60 Gm. ampules. The Council has continued the acceptance of Sulfarsenol under the new distributor.

NEW AND NON-OFFICIAL REMEDIES

Typhoid Vaccine X Plain.—A typhoid vaccine (New and Non-official Remedies, 1925, p. 360), marketed in single 1 c.c. carpule (tube) packages containing 500 million killed bacteria per c.c.; in packages of ten 1 c.c. carpules, each containing 500 million killed bacteria per c.c.; in packages of four 1 c.c. carpules; each containing 1,000 million killed bacteria per c.c. and in packages of ten 1 c.c. carpules, each containing 1,000 million killed bacteria per c.c. Cook Laboratories, Inc., Chicago.

Typhoid Vaccine XX Combined.—A typhoid vaccine (New and Non-official Remedies, 1925, p. 360), marketed in single 1 c.c. carpule (tube) packages containing 500 million killed bacillus typhosus, 375 million killed bacillus paratyphosus A, and 375 million killed bacillus paratyphosus B per c.c.; in packages of ten 1 c.c. carpules each containing 500 million killed bacillus typhosus, 375 million killed bacillus paratyphosus A and 375 million bacillus paratyphosus B per c.c.; in single c.c. carpule packages containing 1,000 million killed bacillus typhosus, 750 million killed bacillus paratyphosus A and 750 million killed bacillus paratyphosus B per c.c. and in packages of ten 1 c.c. carpules each containing 1,000 million killed bacillus typhosus, 750 million killed bacillus paratyphosus A and 750 million killed bacillus paratyphosus B per c.c. Cook Laboratories, Inc., Chicago.

Acne Vaccine Combination X.—A mixed bacterial vaccine (New and Non-official Remedies, 1925, p. 365) marketed in packages of four 1 c.c. carpules (tubes) containing, respectively 262 million, 500 thousand, 525 million, 787 million, 500 thousand and 1,050 million killed bacteria per c.c.; in single 1 c.c. carpule packages containing 1,050 million killed bacteria per c.c. and in packages of ten 1 c.c. carpules each containing 1,050 million killed bacteria per c.c. Cook Laboratories, Inc., Chicago.

Caprokol.—Hexylresorcinol—S. & D.—Normal hexylresorcinol, containing not more than 5 per

cent. of the intermediate product hexylresorcinol. Caprokol possesses marked germicidal properties, is stated to have a phenol coefficient of 45 and to be relatively nontoxic when administered by mouth. When administered, it imparts definite germicidal properties to the urine. Administration of caprokol to normal individuals caused secretion of urine which killed bacillus coli and staphylococcus albus, but the effect of the drug was not constant. Caprokol is proposed for the treatment of urinary infections. The drug is marketed in the form of capsules hexylresorcinol—S. & D., each containing 0.15 Gm. dissolved in olive oil. Sharp and Dohme, Baltimore.

Insulin—Stearns, Single Strength.—10 c.c. vials containing in each c.c. 10 units of insulin—Stearns (New and Nonofficial Remedies, 1925, p. 174). Frederick Stearns and Company, Detroit.

Insulin—Stearns, Double Strength.—10 c.c. vials containing in each c.c. 20 units of insulin—Stearns (New and Non-official Remedies, 1925, p. 174). Frederick Stearns and Company, Detroit.

Insulin—Stearns, Quadruple Strength.—10 c.c. vials, each containing 40 units of insulin—Stearns. (New and Non-official Remedies, 1925, p. 174). Frederick Stearns and Company, Detroit.

Scarlet Fever Streptococcus Antitoxin.—An antitoxic serum prepared by immunizing animals against the toxin of the hemolytic streptococcus of scarlet fever. It is prepared (a) after the method of G. F. Dick and G. H. Dick, by immunizing horses by injection of soluble toxins of strains of hemolytic streptococci, which have produced experimental scarlet fever in human beings and (b) by the method of A. R. Dochez, by which horses are immunized against the specific scarlet fever organism by the localization of the living streptococci in a subcutaneous agar nodule. Much evidence has accumulated to show that the specific organism of scarlet fever has been determined and that the administration of a serum containing the antitoxin produced by this organism will favorably affect the course of scarlet fever.

Scarlet Fever Streptococcus Antitoxin—Lilly (Unconcentrated).—It is prepared by the Dochez method. Each c.c. neutralizes at least 10,000 skin test doses of scarlet fever toxin. Marketed in packages of one vial containing 20 c.c.—Eli Lilly and Co., Indianapolis, Ind.

Scarlet Fever Streptococcus Antitoxin—Lilly. (Refined and Concentrated).—It is prepared by the Dochez method. Each c.c. neutralizes at least 20,000 skin test doses. Marketed in packages of one vial containing 10 c.c.—Eli Lilly and Co., Indianapolis, Ind.

Scarlet Fever Streptococcus Antitoxin—U. S. S. P.—It is prepared by the method of Drs. Dick. Each c.c. neutralizes at least 1,000 skin test doses of scarlet fever toxin. Marketed in packages of one syringe containing 10 c.c. (prophylactic dose); and in packages of one vial containing 20 c.c. (therapeutic dose). United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., May 2, 1925, p. 1338).

Resorcinol Monoacetate.—Resorcin acetate.—The monoacetic ester of resorcinol. The action of resorcinol monoacetate is similar to that of resorcinol, although milder and more lasting, because of the gradual liberation of resorcinol. Resorcinol monoacetate is used in the treatment of acne, syphilis, chilblains, and particularly in the treatment of alopecia and seborrhea. It is applied in 5 to 20 per cent. ointments and as a scalp lotion, in 3 to 5 per cent. alcoholic solutions.

Resorcinol Monoacetate—Eastman Kodak Co.—A brand of resorcinol monoacetate—N. N. R. (See pre-

ceding article). Eastman Kodak Co., Rochester, N. Y. (Jour. A. M. A., May 9, 1925, p. 1421).

Lunosol—Argenti Chloridum Colloidale Saccharatum—Hille.—A preparation of colloidal silver chloride containing silver chloride, 10 per cent., and sucrose, 90 per cent. Lunosol has antiseptic and germicidal properties. It causes neither irritation of the mucous membrane nor coagulation of albumin even in concentrated solutions; it does not stain the skin. Lunosol is intended for the prophylaxis against and treatment of infections of the accessible mucous membranes, such as the genito-urinary tract and the eyes, ear, nose and throat. Lunosol is sold in bulk and in capsules containing six grains.—Hille Laboratories, Inc., Chicago.

Rabies Vaccine (Semple).—Anantirabic vaccine (New and Non-official Remedies, 1925, p. 342, prepared according to the general method of David Semple (phenol killed). It is marketed in packages of seven syringes, each containing 2.5 c.c.—Cutter Laboratory, Berkeley, Calif. (Jour. A. M. A., May 16, 1925, p. 1497).

Bromsulphalein—H. W. & D.—Disodium phenoltrabromphthalein-sulphonate.—The disodium salt formed by the interaction of tetrabromphthalic acid (or anhydride) and phenol with subsequent sulphonation. It contains from 37 to 38 per cent of bromine. Bromsulphalein—H. W. & D. is used as a test of liver function; the amount remaining in the blood stream after intravenous injections as determined colorimetrically, is considered a measure of hepatic dysfunction. Bromsulphalein—H. W. & D., is supplied in ampules containing 3 c.c. of a 5 per cent solution. Hynson, Westcott and Dunning, Baltimore. (Jour. A. M. A., May 23, 1925, p. 1573).

Concentrated Pollen Extracts—Swan-Myers.—Liquids obtained by extracting the dried pollen of plants with a liquid consisting of 67 per cent glycerin and 33 per cent of a solution containing sodium chloride, 2.5 Gm., and sodium bicarbonate, 2.7 Gm., in distilled water, 1,000 c.c. For actions, uses and dosage, see Allergic Protein Preparations, New and Non-official Remedies, 1925, p. 278. The following concentrated pollen extract—Swan-Myers, are marketed in 5 c.c. vials: Annual Sage Concentrated Pollen Extract—Swan-Myers; Ash Concentrated Pollen Extract—Swan-Myers; Black Walnut Concentrated Pollen Extract—Swan-Myers; Blue Grass Concentrated Pollen Extract—Swan-Myers; Box Elder Concentrated Pollen Extract—Swan-Myers; Buckhorn Concentrated Pollen Extract—Swan-Myers; Burweed Marsh Elder Concentrated Pollen Extract—Swan-Myers; Cocklebur Concentrated Pollen Extract—Swan-Myers; Corn Concentrated Pollen Extract—Swan-Myers; Cottonwood Concentrated Pollen Extract—Swan-Myers; False Ragweed Concentrated Pollen Extract—Swan-Myers; Giant Ragweed Concentrated Pollen Extract—Swan-Myers; Goldenrod Concentrated Pollen Extract—Swan-Myers; Hemp Concentrated Pollen Extract—Swan-Myers; Hickory Concentrated Pollen Extract—Swan-Myers; Lamb's Quarters Concentrated Pollen Extract—Swan-Myers; Marsh Elder Concentrated Pollen Extract—Swan-Myers; Mugwort Concentrated Pollen Extract—Swan-Myers; Oak Concentrated Pollen Extract—Swan-Myers; Orchard Grass Concentrated Pollen Extract—Swan-Myers; Prairie Sage Concentrated Pollen Extract—Swan-Myers; Quailbrush Concentrated Pollen Extract—Swan-Myers; Red Sorrel Concentrated Pollen Extract—Swan-Myers; Redtop Concentrated Pollen Extract—Swan-Myers; Russian Thistle Concentrated Pollen Extract—Swan-Myers; Sagebrush Concentrated Pollen Extract—Swan-Myers; Short Ragweed Concentrated Pollen Extract—Swan-Myers;

Slender False Ragweed Concentrated Pollen Extract—Swan-Myers; Southern Ragweed Concentrated Pollen Extract—Swan-Myers; Spiny Amaranth Concentrated Pollen Extract—Swan-Myers; Sudan Grass Concentrated Pollen Extract—Swan-Myers; Sycamore Concentrated Pollen Extract—Swan-Myers; Timothy Concentrated Pollen Extract—Swan-Myers; Western Ragweed Concentrated Pollen Extract—Swan-Myers; Western Water Hemp Concentrated Pollen Extract—Swan-Myers. Swan-Myers Co., Indianapolis, Ind.

Rabies Vaccine—Lederle (Simple Method).—An antirabic vaccine (New and Non-official Remedies, 1925, p. 342), prepared according to the general method of David Semple (phenol killed). It is marketed in packages of 14 syringes, each containing 2 c.c. Lederle Antitoxin Laboratories, New York. (Jour. A. M. A., May 30, 1925, p. 1634).

PROPAGANDA FOR REFORM.

Mercoedel Not Accepted for N. N. R.—Mercoedel (formerly called Lueside), is a preparation of metallic mercury proposed by the Seydel Chemical Company for the treatment of syphilis. A clinical study of Mercoedel was made for the Council on Pharmacy and Chemistry by H. N. Cole, of the Dept. of Dermatology and Syphilology of the Western Reserve University School of Medicine. This study showed that while the drug produced marked therapeutic response, stomatitis might flare up suddenly in severe and even fatal form. Contrary to the claims of the manufacturer, inflammatory reactions were set up in the veins by repeated injections. On the basis of the available evidence, the Council informed the Seydel Chemical Company that Mercoedel had been found unacceptable for New and Non-official Remedies. The firm presented a reply accompanied by letters from users of Mercoedel. The submitted evidence did not refute, but rather confirmed, the conclusions which led to the rejection of Mercoedel and made clear that the conditions for a safe administration have not yet been found. Therefore, the Council affirmed its rejection of Mercoedel. It authorized publication of its original report along with a circular letter of the Seydel Chemical Company, which makes unwarranted use of the report by Cole and his collaborators, and a report on the supplementary evidence submitted by the Seydel Chemical Company. (Jour. A. M. A., May 2, 1925, p. 1373).

Whole Grain Wheat.—The guiding force behind the Whole Grain Wheat Company seems to rest in its president, C. H. Woodward, whose name appears extensively in the advertising. The company's advertising methods are ingenious and many. In addition to advertisements in the ordinary channels, newspapers, etc., the Whole Grain Wheat concern publishes a number of booklets and pamphlets, and gets out a monthly house organ, called *The Motive*, which has C. H. Woodward for its editor and publisher and chief contributor. Also, the concern, apparently organizes so-called "food clinics" in various towns and has as a subsidiary advertising organization the high-sounding "American Educational Food Council." This "Council" appears to be a mere "paper" organization.

Woodward argues that the cure for all diseases is Whole Grain Wheat, because it is *not* denatured, and will make up the deficiencies of the denatured food on which a crazy world is feeding. We are told that Whole Grain Wheat has cured such serious diseases as cancer, tuberculosis, Bright's disease, diabetes and colitis, as well as such conditions as "catarrh," constipation, asthma, bed-wetting in children, etc. So much for the exploitation methods of the Whole Grain Wheat Company. As to the product itself, it

is, apparently, nothing more than whole grain wheat, partly cooked. (Jour. A. M. A., May 9, 1925, p. 1441).

Poison Oak Antigens.—A number of publications have appeared on the use of preparations of *Rhus toxicodendron*, claimed to prevent or alleviate the dermatitis produced by contact with *Rhus toxicodendron*. So far the Council on Pharmacy and Chemistry has not accepted any preparations of this kind, but has under consideration products made by the process used by Strickler and also by a different process. (Jour. A. M. A., May 9, 1925, p. 1445).

Solubility of Mercurochrome-220 Soluble in Alcohol.—Preliminary tests made in the A. M. A. Chemical Laboratory show that "mercurochrome-220 soluble" is much less soluble in alcohol than in water. With 95 per cent. alcohol a solution stronger than 0.01 per cent. could be made. (Jour. A. M. A., May 9, 1925, p. 1445).

Incompatibility of Mercurochrome-220 Soluble.—The A. M. A. Chemical Laboratory reports that when a solution of mercurochrome-220 soluble, 2 per cent., is mixed with an equal volume of a solution of quinin and urea hydrochloride, 10 per cent., a precipitate results. This chemical incompatibility appears to be due to the interaction of the rather acid solution of quinin and urea hydrochloride on the basic mercurochrome solution, whereby the sodium is split off and the relatively insoluble anhydride of mercurochrome together with some quinin, precipitates. (Jour. A. M. A., May 9, 1925, p. 1444).

Heliotherapy.—Generations of laymen as well as physicians have somehow assumed that part of the beneficial effects of outdoor life is attributable to sunshine. The influence of sunlight on health and disease is being unravelled gradually. An impetus to the study has been derived from the investigations of the biologic actions of light, particularly as they are related to dietary deficiencies. It is now clearly established that exposure to ultraviolet radiations will protect against the effects of the lack of antirachitic factors in the diet. Furthermore, foods may acquire antirachitic properties by being irradiated. Recent experiments on the effect of radiation on the bactericidal power of the blood indicate that the exposure of the skin of animals to a source of ultraviolet radiation gives an increased bactericidal power to the blood and serum. It has been found that irradiation for purposes of treatment must be carefully graded, since excessive exposures cause a deterioration of the blood no less striking than the improvement obtained with smaller doses. (Jour. A. M. A., May 16, 1925, p. 1498).

The Parathyroid Hormone.—Postoperative tetany has been relieved by parathyroid grafting. This fact, in connection with other obvious considerations, has prompted the belief that the parathyroid supplied an indispensable hormone to the body. The attempts to use desiccated gland substance or extracts in a replacement therapy have not, as a rule, been attended with success. However, Collip has succeeded in preparing extracts of parathyroid glands that control or prevent tetany in parathyroidectomized animals, and permit them to live. The active principle in this extract produces its effect by causing the calcium content of the blood serum to be restored within normal limits. Coincident with the marked improvement observed after the use of the active extract, a rise in blood calcium has been noted. It has been found that an overdosage with the active extract may push the rise of blood calcium to a condition of hypercalcemia that may even become fatal. These findings on animals warn against careless applications of the new discovery to man and extol the advantage of animal experimentation as a prelimi-

nary to human therapy. (Jour. A. M. A., May 16, 1925, p. 1499).

Some Wagner's Preparations Not Accepted for N. N. R.—The Council on Pharmacy and Chemistry reports that "Wagner's Artificial Vichy," "Wagner's Artificial Vichy Citrated," "Wagner's Artificial 'Ems' Kraenchen," "Wagner's Special 'C'," "Wagner's Carbonated Phosphate," and "Wagner's Piperazine Water," of W. T. Wagner's Sons Company, Cincinnati, are not acceptable for inclusion in New and Non-official Remedies. The Council found that all of these preparations were marketed with unwarranted therapeutic claims. In addition, Wagner's Artificial Vichy, Wagner's Artificial "Ems" Kraenchen, Wagner's Special "C" and Wagner's Piperazine Water are sold in a way which may lead to their indiscriminate and ill-advised use by the public. With the exception of Wagner's Piperazine Water, the names of these preparations do not indicate the character of the potent ingredients. While the use of complex mixtures, such as those represented by Wagner's Artificial Vichy and Wagner's Artificial Ems Kraenchen has long obtained, the further complication of the first as represented by "Wagner's Vichy Citrated" must be held irrational; also, "Wagner's Special 'C'" is held to be a needlessly complex mixture, the routine use of which is unscientific. (Jour. A. M. A., May 23, 1925, p. 1589).

Bayer 205, or Germanin.—The discovery of Bayer 205, also called Germanin, was announced several years ago, but the composition of the compound has been kept secret by the German promoters. The French chemist, Fournau, claims to have prepared an identical product. This is described as the symmetrical urea of sodium *m*-amino-benzoyl-*m*-amino-*p*-methylbenzoyl-*i*-naphthylamino-4-6-8-trisulphonate. — (Jour. A. M. A., May 23, 1925, p. 1591).

Actinotherapy.—With the demonstration of a sound scientific basis for heliotherapy as well as actinotherapy with artificially generated radiations, notably as they apply to the treatment of rickets, new hopes were placed in the efficacy of sunlight. Unfortunately, there is likely to be some disappointment. A comparison of the yearly amount of sunshine in cities in the temperate zone demonstrates that there is no close parallelism between the incidence of rickets and annual sunshine. The determining factor is the quality, not the quantity, of the sun's rays. The results of heliotherapy during the winter months have been disappointing. Physicians should be prepared, where advisable, to counsel supplementing nature's niggardly sunshine with the results of man's discoveries. It should no longer be difficult to protect children from rickets, and as antirachitic action consists in the induction of calcium assimilation and its conservation, this is a matter that concerns not only the young, but also the adult.—(Jour. A. M. A., May 30, 1925, p. 1670).

Book Announcements

New and Nonofficial Remedies, 1925, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1925. Cloth. Price, postpaid, \$1.50. Pp. 461+XL. Chicago: American Medical Association, 1925.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually pro-

vides the American medical profession with disinterested critical information about the proprietary medicines which are offered to the profession and which the Council deems worthy of recognition. The book also contains descriptions of nonproprietary medicines which the Council considers worthy of consideration.

In addition to a statement of the actions, uses and dosage of each product, many of these are arranged in classes and these classes are introduced by a general discussion of the group; thus the silver preparations, the iodine preparations, the arsenic preparations and the biologic products are preceded by an up-to-date discussion of the group.

In addition to the description of the new drugs which were accepted during the past year, the book has been extensively revised; many of the preparations listed in the previous edition have been omitted and the statements of the properties of others have been revised to bring the descriptions in accord with present-day knowledge.

A section of the book (brought up-to-date each year) gives references to proprietary articles not accepted for New and Nonofficial Remedies. This list, in conjunction with the book proper, constitutes a cumulative index of proprietary medicines which physicians may consult when some proprietary product is brought to their attention.

Physicians will find this book helpful in determining the merits of the new as well as the old remedies put on the market.

Modern Surgery. General and Operative. By JOHN CHALMERS DaCOSTA, M. D., LL.D., F. A. C. S., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, and Consultant Surgeon to Various Hospitals. Ninth Edition, Revised and Reset. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 1,527 pages with 1,200 illustrations, some in colors. Cloth. Price \$10.00 net.

Collected Papers of the Mayo Clinic and the Mayo Foundation, Rochester, Minnesota, for 1924. Vol. XVI. Published May, 1925. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 1,331 pages, with 254 illustrations. Cloth. Price \$13.00 net.

Pediatrics. By Various Authors. Edited by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totaling 8,000 pages with 1,500 illustrations, and separate Index Volume free. Now ready—Volume VII, containing 879 pages with 70 illustrations. Philadelphia and London. W. B. Saunders Company. 1925. Cloth. Price \$10.00 per volume. Sold by subscription.

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Editorial

Liver Function Tests.

Last month we used as reference MacLeod's and Howell's recent well-known text-books on physiology in order to bring before our readers some comments upon the varied functions of the liver. In this issue we present a few clippings from current literature, as found in recent publications of the *Journal of the American Medical Association*, with the purpose to further emphasize to Virginia physicians the widespread interest that this subject has awakened in medical thought in recent months, as well as to point out the difficulties to be encountered in attempting to determine the functioning powers of an organ of such varied physiologic action. Perplexing questions present themselves. Can the levulose test be a liver function test of anything but the glycogen function? Can the dye test determine the glycogenic, the urea, the fat, the excretory bile function? Can urobilin and urobilinogen tests give any real meaning of liver function as related to its glycogenic, urea, or fat function? Is it possible to find one test that will give an estimate of the liver's functions?

After all we must await more complete and satisfactory development of the work on the liver function tests. The question of determining whether or not the liver is meeting the requirements of its glycogenic function, its urea function, its fat function, its bile formation and excretory function, in the early or late phases of misfunction, can hardly be near realization. To clinicians the signs of physi-

cal diagnosis afford a clue to liver dysfunction. When there is diffuse or unsymmetrical enlargement of the liver, when there is evidence of hypo- and hypertrophic change of the liver, when there is evidence of icterus or jaundice following obstruction of the outflow of bile into the duodenum, the functions of the liver may be called in question.

Likewise the subjective symptoms of that much ill-used word, "biliousness," may have more scientific meaning in this connection than medical thought has as yet properly given them. Speaking in general and with a sense of great difference for the clinical understanding of our forefathers in medicine, we may yet be compelled to say that their frequent use of calomel and blue mass, which rid the body of putrid and noxious material and brought relief from symptoms of dizziness, vertigo, nausea and 'bilious headache,' and quickly restored mental and physical feeling of well-being, was a canny understanding of liver misfunction. In the South, in the old days, when the land was abounding in food and drink, to which our forefathers resorted with little restraint and when malarial infection with its "chill days," in certain sections of this country was widespread, the use of calomel, blue mass, podophyllin and aloes was employed to afford relief from symptoms of biliousness (liver dysfunction). So, upon these diagnosis signs of liver dysfunction, the practitioners of early days depended as indicated by the therapeutic use of drugs which apparently brought at least temporary relief to their patients.

We may read with interest the observations included in the following abstract on Levulose Liver Function Test:

In the *Journal of Laboratory and Clinical Medicine*, 10, 517-602, April, 1925, abstracted in the *Journal of the American Medical Association*, June 20, 1925, it is seen that Finkelstein and Dannenberg performed the levulose test, in liver function testing, on thirty-eight consecutive patients; twenty-six were tested by the Benedict and twelve by the Epstein method. There was no increase in blood sugar in nineteen patients, representing observations in fourteen different diseases. The second nineteen patients, covering twelve diseases, showed increased blood sugar for a period of two hours. The levulose test proved positive in acute and chronic gall-bladder infections

(five cases); in icterus, in carcinoma of pancreas, and in chronic passive congestion of the liver (four cases). The test was also positive in a few other conditions in which there was no clinical evidence of hepatic injury. One really notes the unreliability of this test, but, at the same time, its possible usefulness in connection with the general study of the subject. The levulose and galactose test of liver function and the study of blood sugar in liver disease present a very interesting subject for speculation and investigation; likewise the use of the dye test of liver function, as illustrated.

In the phenoltetrachlorophthalein liver function test which has recently been employed by Maurer and Gatewood (*Journal of the American Medical Association*, Vol. 84, No. 13, page 935), one observes some interesting phases of the subject. This dye, injected intravenously in doses of 5 mg. per kilogram of body weight, was used by Rowntree *et al* as an index of liver function as it was chiefly excreted in the bile and recoverable in the feces in forty-eight hours. The difficulties of this method caused others to attempt to study the appearance of the dye in duodenal content. Rosenthal studied its retention in blood as a test of liver elimination. After an interesting recital of various methods, sidelights upon scientific procedure, and personal experience, these authors summarize by saying that the rate at which the dye is removed from the blood stream, while showing certain definite changes in advanced liver disease, is apparently not a true index of impairment of liver function.

Another angle of liver activity is found in the paper on "Bile Suppression as Result of Impairment of Liver Function." *Journal of Experimental Medicine*, 61, 587-690, May 1, 1925, abstracted in the *Journal of the American Medical Association*, Vol. 84, No. 25, page 1959. Drury and Rous present evidence to show that even when one is supposedly dealing only with mechanical obstruction, a superimposed functional biliary disturbance may exist. The impermeability of liver parenchyma to sodium indigotate from blood is taken as an evidence of functional impairment.

Readers interested in this discussion may find a good summary of the papers of a symposium on "Disturbances of Liver Function" read before the Association of American Physicians, Washington, D. C., as reported in the *Journal of the American Medical Association*,

June 6, 1925, page 1774. Dr. Rowntree's remarks, in summarizing the subject are well worth reading:

"There is much still to be learned concerning the diagnosis of disease of the liver. Liver function tests are of great help, but there are others which should never be lost sight of. The coagulation time is of extreme importance, particularly in relation to surgery. The fragility test gives valuable information from the standpoint of differential diagnosis. Roentgen-ray studies, with the recent introduction of dyes in this connection, add another important laboratory link to the chain of examinations that can be made in diagnosing disease of the liver. The approach to the study of liver function is difficult. The proposed tests must be studied in a large series of cases, and the peculiar value and significance of each test be determined. My studies include more than a thousand determinations of the phenoltetrachlorophthalein retention, and an investigation of other tests of liver function, such as the Van Den Bergh test and the levulose and fructose tests. The two tests which I have decided are of real value are the dye retention, and the level of the serum bilirubin. I do not believe that any of the tests have been of clinical value, except the tests of excretory function. The test of metabolism has not proved of value in clinical practice. When jaundice is present, these tests are of importance in diagnosis from a quantitative point of view, but they lack in information, because the yellow of the patient is just as good as the red of the test. They are of value in latent jaundice. Their greatest value will lie in cases without jaundice, and in such cases the phenoltetrachlorophthalein test is the most useful. They serve to control the results of treatment and to follow the course of the disease. These tests with the blood chemical tests indicate the occurrence of toxemias. The coagulation time has been of extreme importance, particularly when the clotting time is preoperatively controlled by the use of calcium. I believe from our studies that these tests are already of practical value in the clinic and in medicine, but the field of their value is strictly limited."

Pancreatic Secretion.

Silverman and Denis¹ call attention to physiologic response of pancreatic secretion to

1. Silverman and Denis.—*Archives of Internal Medicine*, Chicago, March 15, 1925, page 357. Abstracted in the *Journal of the American Medical Association*, May 16, 1925, page 1520.

different foods. The effect of 400 c.c. of milk, taken in two equal parts, at an half hour interval, is to stimulate protease and lipase. The ingestion of cream (fat) in 200 c.c. amounts, half an hour apart, in two feedings, produced a very distinct stimulation of amylase and protease in twenty-six minutes after receiving the first. The feeding of the whites of eight eggs and one yolk, boiled for two minutes, produced the striking result of a maximum output of all three of the pancreatic enzymes. In one hour and seventeen minutes amylase and protease enzymes doubled their concentrations and lipase rose from 0 c.c. to 1.5 c.c. Feeding of arrow root biscuits did not produce any stimulation of amylase, but a little of protease.

Howell,² representing modern physiologists, may be cited in further comment upon this important organ of digestion. Pancreatic secretion is a water-clear secretion, amounting to from 500 to 800 c.c. a day. It possesses three enzymes, trypsin (proteolytic), amylase (pancreatic diastase), and lipase (lipolytic). The rate of flow of pancreatic juice is dependent to a marked degree upon the nature of the food. This author's observations tend to show that maximum flow is reached sooner after a meal of bread than after a meal of meat.

How the enzyme concentration of the juice is stimulated by different foods is not understood, but it is considered probable that the composition or adaptation of the secretion varies somewhat with the character of the food.

News Notes

Finals of University of Virginia. Department of Medicine.

The Medical Department of the University of Virginia, as is its custom, held its final exercises in connection with those of the other departments of the University, June 14-16. Bishop James E. Freeman, of Washington, delivered the annual sermon to the graduates in Cabell Hall, on June 14, and that evening, there was an organ recital by Harry Rogers Pratt in the McIntire amphitheater.

Monday, the 15th, was alumni day, and a large number of former students were present for this occasion. Drs. Hugh Young, of Bal-

timore, and Hugh T. Nelson, of Charlottesville, were among those elected members of the Board of Managers of the Alumni Association. Judge Nathan L. Bachman, of Chattanooga, Tenn., former justice of the Supreme Court of Tennessee, was speaker at the alumni and class luncheon at the Commons, that day. That afternoon, President and Mrs. Alderman gave their usual reception at their home in honor of the graduates. The alumni ball was held that evening, beginning at 10 P. M.

Class exercises were held at 11 A. M. on Tuesday the 16th, and graduating exercises in the afternoon of the same day, A. D. Barksdale, of Lynchburg, delivering the address to the graduates. Of the thirty-two students and six alumni elected to membership in the Phi Beta Kappa, national scholastic honor society, James S. Bradsher, Jr., John Staige Davis, Jr., Elizabeth H. Edmunds, Henry W. Patton, and Wiley J. Rollins, Jr., were from the medical department and Dr. James C. Bardin, University, and Dr. John W. Burke, II, of Washington, D. C., from the alumni. The final ball in the gymnasium that evening closed the festivities for the class of 1925.

The list of graduates in the Medical Department, with hospital appointments, is as follows:

University of Virginia Hospital, University—

Drs. Edward N. Booker, Clayton, N. C.; Lemuel R. Broome, Kinston, N. C.; Richard C. Eley, Suffolk; John B. Faison, Manassquan, N. J.; Robert E. Feagans, Holcomb's Rock; Joseph C. Inman, Jr., Greensboro, Fla.; Eldred S. Jones, Hampton; Warren W. Koontz, Roanoke; and Wiley J. Rollins, Jr., Darlington, S. C.

*St. Joseph's Hospital, Baltimore, Md.—*Dr. Sheppard K. Ames, Belle Haven.

*Maryland General Hospital, Baltimore, Md.—*Dr. Frederick T. Amiss, Luray.

*Protestant Hospital, Norfolk, Va.—*Drs. Mal-lory S. Andrews, Norfolk; Frederick P. Bar-row, II, Portsmouth, and Porter B. Echols, Glasgow.

Massachusetts General Hospital, Boston, Mass.

Dr. Staige D. Blackford, University, Va.

Fifth Avenue Hospital, New York, N. Y.—

Drs. Herman Boughton, Mangham, La., and Charles P. Cake, Norfolk.

*St. Vincent's Hospital, Norfolk, Va.—*Dr. James S. Bradsher, Jr., Oxford, N. C.

2. Howell.—Textbook on Physiology. Ninth edition, page 792.

Macon General Hospital, Macon, Ga.—Dr. Glynne Brown, Potts Camp, Miss.

U. S. Public Health Service—Drs. Kirby K. Bryant, Sanford, Miss.; Haswell D. Franklin, Hillsville; Clarence N. McPeak, University, Va., and William H. Sebrell, Jr., Portsmouth.

State University Hospital, Philadelphia, Pa.—Dr. Walter H. Calhoun, III, Erica.

Hebrew Hospital, Baltimore, Md.—Dr. Joseph Caplan, Norfolk.

Orange Memorial Hospital, Orange, N. J.—Dr. Thomas H. Clarke, Jr., Sumter, S. C.

Virginia Mason Hospital, Seattle, Wash.—Drs. Julian H. Coleman, Penola, and Andrew S. Graham, Columbia, S. C.

St. Luke's Hospital, New York, N. Y.—Drs. John Staige Davis, Jr., University, Va., and James W. Jervy, Jr., Greenville, S. C.

Memorial Hospital, Worcester, Mass.—Dr. Elizabeth Edmunds, Halifax.

Post-Graduate Hospital, New York, N. Y.—Dr. Charles H. Evans and George D. McGregor, both of Lynchburg.

Chestnut Hill Hospital, Philadelphia, Pa.—Drs. John E. K. Flannagan, Richmond, and Frank P. Hunter, Warrenton, N. C.

Church Home and Infirmary, Baltimore, Md.—Dr. Joseph C. Hiden, Pungoteague.

Stuart Circle Hospital, Richmond, Va.—Dr. Richard H. Holt, Bingham Canyon, Utah.

University of Pennsylvania Hospital, Philadelphia, Pa.—Dr. Stanton K. Livingston, University, Va.

Gallinger Municipal Hospital, Washington, D. C.—Dr. Adah Anita Lotti, Charlottesville.

Metropolitan Hospital, New York, N. Y.—Dr. Ruth S. Mason, Stony Creek.

U. S. Naval Hospital, Norfolk, Va.—Drs. Ocie B. Morrison, Jr., Petersburg; Henry W. Patton, Jonesboro, Tenn., and Marion T. Rosser, Onancock.

Tenn. C. & I. Employees' Hospital, Birmingham, Ala.—Dr. Martin G. Neely, Anderson, S. C., and Frank W. Riggs, Greenville, Miss.

Worcester City Hospital, Worcester, Mass.—Dr. William A. Runkle, Charlottesville.

St. Elizabeth's Hospital, Richmond, Va.—Drs. Roy W. Upchurch, Oxford, N. C., and Harry J. Warthen, Jr., Richmond.

Virginia State Board of Health—Dr. Goldsborough F. McGinnis, Merry Point.

Resident Roentgenologist, University of Virginia Hospital, University, Va.—Dr. Edgar M. McPeak, University, Va.

Instructor in Pathology, University of Virginia—Dr. Roy A. Gregory, Tupelo, Miss.

Instructor in Anatomy, University of Virginia—Dr. Albert M. Smith, Richmond.

Richmond Meeting of Medical Society of Virginia.

Special committees appointed by the Richmond Academy of Medicine to prepare for the meeting of the State Society, October 13-16, are planning an interesting and pleasant time for those who attend. A large attendance is expected and all members of the Society are urged to attend and bring members of their families. Social features will be prepared for the men and ladies accompanying them, and, with the guests named in our June issue and the material to be furnished by our members, the scientific program should be a good one. Make arrangements to save part of your vacation time for this meeting and make hotel reservations in advance.

At the last meeting in Roanoke, the Roanoke Academy of Medicine donated a cup for the golf tournament. This cup is to be held permanently by the member of the Society who wins it at three consecutive meetings. It was won in Roanoke by Dr. Fred Hodges, of Richmond, and in Staunton, by Dr. Thomas W. Murrell, of Richmond. All golfers should enter for this tournament.

Cards will be sent out early in August, as is the custom of the Society, requesting titles of papers for the meeting. In accordance with resolution adopted by the Program Committee, the Secretary-Treasurer of the Society may not receive titles for the program prior to two months before the date of the annual meeting, the plan being to give all members an equal chance to submit titles, as the program is to be limited to fifty papers. This year, the first day on which the Secretary-Treasurer may receive titles will be August 13th. It is therefore requested that members time the sending of their titles so that they may reach the Society's offices, 104½ West Grace Street, Richmond, on or as soon as possible, after that date. By limiting the number of papers, the Society will meet in only one session. The resolution is as follows:

"1. No title shall be accepted for the program prior to two months before the date of the annual

meeting. As provided in the By-Laws, an announcement concerning the annual meeting and request for titles of papers shall be mailed by the Secretary-Treasurer to all members of the Society.

"2. On and after the day which would be two months prior to the first day of the annual meeting, titles will be received until fifty are in hand. In the fifty titles referred to, provision shall be made for the papers of the invited guests and papers on the subject of general discussion.

"3. After the fifty titles are received, the Program Committee shall arrange and classify them according to related subjects."

Scientific Exhibit for the Next Meeting of the Medical Society of Virginia.

An effort is being made to have an attractive scientific exhibit at the meeting of the Medical Society of Virginia this fall. The committee consists of Dr. J. Shelton Horsley, chairman, Dr. Charles Phillips, of the Medical College of Virginia, and Dr. J. S. Horsley, Jr. The chairman of the committee is particularly desirous of receiving applications for exhibits at as early a date as possible so that the proper space can be assigned. It is hoped that the two medical colleges in Virginia will contribute an extensive exhibit, particularly along educational lines. The hospitals in Virginia should also furnish exhibits. The Committee on Scientific Exhibits wishes to have exhibits from individual doctors or groups of doctors who are working along any special lines.

The committee earnestly requests that the medical schools, hospitals or individuals who expect to participate in the Scientific Exhibit will communicate with the chairman of this committee as soon as possible.

N. C. State Health Officers' Association.

At the annual meeting of this Association in Pinehurst, the following officers were elected: President, Dr. S. E. Buchanan, Concord; vice-president, Dr. Lester L. Williams, Mt. Airy; and secretary-treasurer, Dr. Frank M. Register, Raleigh.

Dr. J. Minor Holloway,

Of Port Royal, Va., who recently completed a course in otolaryngology at the University of Pennsylvania, has gone to Washington, D. C., where he will take charge of the practice of Dr. G. Bache Gill, at 1624 Eye Street, Northwest, while Dr. Gill is taking a post-graduate course at Vienna, Austria.

Dr. Bernard H. Kyle

Has been elected one of the vice-presidents of the Lynchburg (Va.) Lions Club.

Chile Enacts Social Hygiene Law.

By a single stroke of legislative action the Republic of Chile has recently joined the ranks of the nations giving special and continued attention to the control of venereal diseases. The law establishes the Division of Social Hygiene which naturally differs from the Division of Venereal Diseases of the United States Public Health Service by having police power for the enforcement of preventive measures.

The Chilean Division of Social Hygiene has for its function the dissemination of information concerning venereal diseases, the creation of social hygiene professorships in colleges and universities, and the suggestion of types of elementary school instruction in social hygiene. The Division is further vested with the power to control and repress prostitution. Any woman prostitute declared to have a venereal disease is to be confined to a hospital during the period of contagion. Those refusing treatment are to be sent to a reformatory. Provision is also made for injunction and abatement measures making it possible to close up as a nuisance any building which the owner permits to be used for purposes of prostitution. Advertisements relating to patent medicines for the cure of venereal diseases are not to be accepted for publication in newspapers and magazines, unless endorsed by the Division of Social Hygiene. A medical certificate of good health is required from both men and women before marriage.

Dr. G. B. Gilmore,

Of Norfolk, Va., is spending some time in New York City, where he is taking post-graduate work in diseases of the ear, nose and throat.

The Medical Veterans of the World War

Held a most successful dinner-meeting during the recent meeting of the American Medical Association in Atlantic City. This was attended by about five hundred and interesting reminiscences were given by a number. This banquet was so successful that it was decided to perfect State organizations to meet with the State Societies for similar social purposes and to preserve the spirit of service with which 35,000 physicians entered the World War. Dr. Hubert Work was elected president for the coming year.

Several Richmond Doctors Honored.

Dr. Douglas VanderHoof was elected a member of the Association of American Physicians,

at its meeting recently held in Washington, D. C.

Dr. Emory Hill was elected secretary of the American Ophthalmological Society at its annual meeting in May.

Dr. M. Pierce Rucker was elected a member of the American Gynecological Society at its meeting in Washington, D. C., in May.

The West Virginia State Medical Association,

At its annual meeting in Bluefield, early in June, elected the following officers for the ensuing year: President, Dr. James R. Bloss, Huntington; vice-presidents, Drs. Richard O. Rogers, Bluefield; Dr. Henry C. Skaggs, Montgomery; and D. A. MacGregor, Wheeling; treasurer, Dr. Hugh G. Nicholson, Charleston; executive secretary, Mr. Sterrett O. Neale, Charleston. Dr. Bloss, who has been editor of the *West Virginia Medical Journal*, will assume his duties as president on January 1. The journal will then be edited by a committee composed of Drs. James H. Anderson, Marys-town; Walter E. Vest, Huntington; Harry M. Hall, Wheeling; Charles A. Ray, Charleston; and Charles W. Waddell, Fairmont.

Early Vacationists.

Dr. I. K. Briggs has returned to his home in South Boston, Va., after a motor trip to Canada and many points of interest in the north, including Atlantic City.

Dr. and Mrs. Paul Redd and daughter, of Richmond, returned home the first of this month, after a visit to Boston and Newton Center, Mass., and to New York City.

Dr. and Mrs. B. Ryland Hudnall and children, of Covington, Va., left about the middle of June for a motor trip to Richmond and later to Reedville, Va.

Dr. and Mrs. B. B. Bagby and children, of Richmond, left the latter part of June on a motor trip to Sheffield, Mass., where they expect to spend several weeks visiting relatives.

Dr. and Mrs. James L. Early, of Saltville, Va., were recent visitors in Pulaski, Va.

Dr. and Mrs. J. Allison Hodges, Richmond, left the first of July for their summer home, "Drowsy Waters," near Montreat, N. C. They will remain there for the rest of the summer.

Dr. and Mrs. Charles E. Conrad and children have returned to their home in Harrisonburg, Va., after spending sometime in Atlantic City, N. J.

Dr. Joseph A. White and Dr. and Mrs.

Emory Hill, of Richmond, sailed from New York, on June 27, for England. Drs. White and Hill expected to attend a convention in London, early in July, and later to spend some time travelling in Europe.

Dr. and Mrs. W. Lowndes Peple and daughter, of Richmond, left the first of July for New Hampshire, where they have taken a cottage for the summer. Dr. Peple expected to return to the city after a few weeks.

Dr. Robert T. Glassell returned to his home at Bowling Green, Va., the latter part of June, after a visit to his daughter in Norfolk, Va.

Dr. and Mrs. Paul W. Howle and family, and Dr. and Mrs. Beverley R. Tucker and family, of Richmond, have taken cottages at Mountain Lake, Va., for the summer season. Both Drs. Howle and Tucker plan to spend several weeks with their families at this resort.

Dr. and Mrs. Grant Preston and small son, of Harrisonburg, Va., are home again, after a visit to Mrs. Preston's parents at Front Royal, Va.

Dr. and Mrs. R. C. Fravel and son, of Richmond, have been spending some time with relatives at Woodstock, Va.

Dr. Robert M. Glass and daughter, Miss Colleen Glass, of Winchester, Va., sailed from New York, July 4, for a visit to European countries. They will also visit Jerusalem and the Holy Land before returning home in the early Fall.

Dr. and Mrs. Howard Armstrong and sons have returned to their home in Harrisonburg, Va., after a visit to Washington, D. C.

Dr. and Mrs. R. F. Thornhill, Pulaski, Va., are enjoying a visit with friends in Orange, Va.

Dr. and Mrs. J. Thomson Booth returned to their home in Ashland, Va., the first of the month, after a visit of several weeks to California.

Dr. Samuel Downing and family, of Newport News, Va., have been on a visit to Dr. Downing's parents in Lancaster, Va.

Dr. and Mrs. Armistead L. Wellford returned to their home in Richmond, the latter part of June after a motor trip to Mountain Lake and Pulaski, Va.

Dr. W. S. Hodnett, Richmond, is home again after a visit of several weeks to the Pacific coast. While away, Dr. Hodnett visited a number of points of interest in the west.

Dr. and Mrs. W. Armistead Gills, Rich-

mond, left the middle of June for a visit of several weeks to Atlantic City. Later, they will go to Tate Springs, Tenn.

Honor to Late Dr. Bahnson.

At commencement exercises of the Salem Woman's College, at Winston-Salem, N. C., the Bahnson Memorial Infirmary was presented the College, as a memorial to Dr. Henry T. Bahnson, of that city, who died in 1917. Dr. Bahnson was one of the most prominent doctors of the "Old North State" and was for many years physician to the College.

The Lewis-Gale Hospital Training School for Nurses

Held its commencement exercises on the evening of June 12th, at Hotel Roanoke, Roanoke, Va. At this time six young women were presented diplomas.

Dr. S. C. Draper,

Who has been for sometime at Bluefield, W. Va., has returned to Pulaski, Va., where he is now engaged in general practice.

Dr. Cora Z. Corpening

Has resigned from the staff of Lakeview Hospital, Suffolk, Va., effective July 1. She has gone to Virginia Beach, Va., where, after a few weeks' rest, she will resume private practice.

The Galax Hospital and Clinic

Has recently been opened at Galax, Va., with the following doctors on its staff: Dr. J. K. Caldwell, internal medicine; Dr. A. L. Jones, surgery and operative gynecology; Dr. Z. G. Phipps, obstetrics, diseases of women and children and medical gynecology; Dr. John C. Phipps, diseases of the eye, ear, nose and throat; Dr. W. P. Davis, X-ray; and Dr. R. S. Kyle, microscopic and laboratory.

Dr. J. H. Crouch,

Health officer for Williamsburg and James City County, Virginia, returned early in June from Johns Hopkins University, where he had been taking a post-graduate course in public health work. On his return to Williamsburg, Dr. Crouch stopped in Richmond for a short visit to relatives.

Hampden-Sidney Alumni Organize.

Lynchburg, Va., Hampden-Sidney College alumni, organized an association in June, and elected Dr. James Morrison president, and Dr. J. Paulett Clark vice-president.

Dr. Ramon D. Garcin,

Richmond, after an illness of several months at Hygeia Hospital, this city, returned home about the middle of June. He is now much improved and will take a short vacation before resuming work. He wishes, through these columns, to thank his many friends for their kindnesses to him during his illness.

Dr. Calvin H. Childress,

Norfolk, Va., was a member of the medical corps with the Virginia Naval Reserves on the U. S. S. Eagle 9, on its trip in June, when that boat was disabled by storms and was much delayed in reaching port.

Dr. and Mrs. T. W. Edmunds,

After spending about six months in Vienna, Austria, have returned to their home in Danville, Va. While in Vienna, Dr. Edmunds spent most of his time in taking post-graduate work in diseases of the eye, ear, nose and throat.

Dr. Henry's Home Struck by Lightning.

During an electrical storm on June 18, the home of Dr. Hugh C. Henry, of Central State Hospital, Petersburg, Va., was struck by lightning and damaged to the extent of about \$500. Members of Dr. Henry's family were uninjured.

More Play, Less Delinquency.

Thirty-eight out of every 100 children brought before juvenile-court officials in Omaha live one-half mile or more from the nearest playground, according to a study by Professor T. E. Sullenger of the University of Omaha.

Omaha's juvenile delinquency rate for 1922-23 was 3.1 per cent compared with 1920 rates of 3.8 for Washington, D. C., 2.4 for Boston, and 1.2 for Buffalo, it is pointed out. Remedies for juvenile delinquency urged by Professor Sullenger are more playgrounds, enforcement of pool room laws, censorship of motion pictures, fewer boys in street trades, more Boy Scouts, better enforcement of school laws.

The Medical Association of the Valley of Virginia

Held its semi-annual meeting at Clifton Dale Country Club, Clifton Forge, Va., June 4, Dr. D. M. Kipps, of Front Royal, presiding. The attendance was good and interesting papers were presented. Between the morning and afternoon sessions, luncheon was given the

visitors at the club house. Dr. Alexander Robertson, Jr., Staunton, is secretary of this association. Several new members were admitted. It was decided to hold the next meeting in Winchester, September 24.

Dr. T. Allen Kirk,

Of Roanoke, Va., has been elected president of the Hampden-Sidney College Alumni Association, which completed its organization in June.

Shrine Hospital for Richmond.

It is announced that Richmond, Va., was chosen as one of the cities for a \$1,000,000 hospital for crippled children by the Imperial Shrine Council, at its meeting in Los Angeles, California, in June. The initial structure to be erected will cost about \$150,000, and it is planned to expand the institution to the \$1,000,000 plant by degrees. This is to be one of a number of similar institutions being erected by Shriners throughout this country. The site is to be selected by a committee to be appointed by the Imperial Shrine Council.

The Inter-State Post-Graduate Assembly of America

Will be held at St. Paul, Minnesota, October 12-16, 1925. A number of the country's most prominent physicians and specialists have signified their acceptance of invitations to appear on the scientific program. Dr. William B. Peck, Freeport, Ill., is managing director, and Dr. Edwin Henes, Jr., 445 Milwaukee Street, Milwaukee, Wis., is secretary and director of exhibits.

Dr. Clifford A. Folkes,

Of Richmond, who was operated upon for appendicitis, early this month, was reported as doing well as we went to press.

Denmark Reduces Venereal Disease.

According to a recent report by Dr. F. T. H. Wood of the Health Section of the League of Nations Secretariat, syphilis has been reduced in Copenhagen, Denmark, from 8.8 per 10,000 in 1910 to 4.6 in 1922. The rate of infection with gonorrhea also shows a considerable decline.

It is of interest in this connection that Denmark was the first country to introduce legislation dealing with the control of venereal diseases. As early as 1788 the plan of free treatment and compulsory medical care of venereally infected individuals was adopted. Since

then the effectiveness of the eradication of syphilis and gonorrhea has been strengthened by limiting medical practice to qualified persons, prohibiting patent medicine advertisements, providing clinical and hospital facilities, and establishing the "State Serum Institute," which has for its main functions the laboratory diagnosis of syphilis and the maintenance of a card index of persons so infected.

Urgent Need of Conserving the Sight of School Children.

A recent news note received from the National Committee for the Prevention of Blindness, 130 East 22nd Street, New York City, calls attention to the fact that one child out of every eleven in the public schools of American cities and one child out of every seven in the schools of rural districts in the United States have such seriously defective vision as to be handicapped in their school work. Conservation of the eye-sight of school children is fundamentally a duty of the school system. As a first step toward the fulfillment of this duty, a uniform law for the examination of the eyes of school children should be adopted by all cities and states.

During one year, when a study was being made, it was found approximately 5,000,000 school children in the United States received eye examinations and that an average of about 12 per cent of these children were found to have defective vision. About one-eighth of the 24,000,000 school children in the country have faulty eye-sight. Investigators found that rural districts generally report a larger per cent of defective vision than city districts. One state showed 16.8 per cent of defective vision among 500,000 pupils examined in the rural districts, while the cities of that state showed only 8.5 per cent among 370,000 pupils examined. Another state reports 14.4 per cent defectives in rural districts and cities in the same state 6.3 per cent. It seems likely that this difference is due to such differing factors as conditions under which the tests were made, bad illumination in rural schools and homes, and the small number of corrections of visual defects provided for rural children.

Discussing existing legislation on the subject, the report reveals that in only seventeen states is the examination of the eyes of school children compulsory and that in fourteen other states it is merely permissive. Of the seventeen

states requiring eye examinations very few specify the portion of school population to be examined or the frequency with which such examinations should be made. About the period of adolescence, twelve to fifteen years, the condition of the eyes is likely to be changing, so that through the whole period of six to fifteen the average child's eyes and vision undergo a slight, though certain, change. This emphasizes the need of frequent tests during this period.

Dr. John M. Manning,

Durham, N. C., was recently elected mayor of that place for his third term.

Member S. C. State Board of Health.

Dr. Davis Furman, of Greenville, S. C., has been appointed a member of the South Carolina State Board of Health to succeed the late Dr. C. C. Gambrell.

Dr. Allen H. Moore,

Formerly of New Market, Va., a member of the Medical Society of Virginia and for four years a member of the local Board of Health for Shenandoah county has moved to Doylestown, Pa., where he will continue his professional work. Dr. Moore is an alumnus of Jefferson Medical College, Philadelphia.

Dr. F. A. Sinclair,

Of Newport News, Va., was elected surgeon of the Veterans of Foreign Wars, at the second annual encampment of the State department, held in Newport News, Va., in June.

Resigns as Dean of Emory University School of Medicine.

Dr. William S. Elkin, for seventeen years dean of the Emory University School of Medicine, Atlanta, Ga., recently tendered his resignation and was elected emeritus dean and emeritus professor of obstetrics and gynecology. Dr. Elkin has been connected with this school, now known as the School of Medicine of Emory University, for forty-three years.

Dr. Russell H. Oppenheimer, an alumnus of the University of Michigan Medical School, has been elected to succeed Dr. Elkin as dean.

Superintendent of Fredericksburg Hospital.

Miss Sue Davidson, formerly of Alexandria, Va., was appointed superintendent of the Mary Washington Hospital, Fredericksburg, Va., and entered upon her duties there June 15.

The American Society of Clinical Pathologists,

At its annual meeting in Philadelphia, recently, elected Dr. Frederick E. Sondern, New York, president, Dr. William G. Exton, Newark, N. J., president-elect, and re-elected Dr. Ward T. Burdick, Denver, Col., secretary-treasurer.

Married.

Dr. John Shelton Horsley, Jr., and Miss Lillian Waller Holladay, both of Richmond, June 24.

Dr. Percy Everett Schools and Miss Evelyn Mallory, both of Richmond, June 3.

Dr. Ezra Eugene Neff, of Madison, Wis., and Miss Ruth Perry, of Beverly, Mass., June 2. Dr. Neff was formerly from Chilhowie, Va., and graduated in medicine from the University of Virginia in 1916.

Dr. Henry A. Hornthal,

Formerly of Norfolk, Va., who graduated from Medical College of Virginia, last year, left the first of this month for White Sulphur Springs, W. Va., where he will spend sometime before going to Washington to make his home. Dr. Hornthal has just completed a year's internship at St. Luke's Hospital, Richmond.

Zinc Stearate Dusting Powders for Infants.

The second report of the Committee on Accidents from Zinc Stearate Dusting Powders appointed by the Board of Trustees of the American Medical Association has recently been published. Copies of this report, with an appendix showing the opinions of thirty-four representative pediatricians on the therapeutic value of such powders, can be obtained on request. Address, Committee on Zinc Stearate Dusting Powders, American Medical Association, 535 North Dearborn Street, Chicago, Illinois, enclosing a self-addressed, stamped envelope.

There were reported to the Committee 131 accidents from the inspiration of zinc stearate dusting powders by infants. Twenty-eight of the victims died. The Committee conferred with representatives of certain distributors concerning the dangers incident to the use of such powders on infants. Following a meeting held at the headquarters of the American Medical Association, these distributors agreed to co-operate by adopting self-closing containers for the powders they distribute and agreed

that cautionary labels are desirable. Opinions were secured from thirty-four representative pediatricians concerning the therapeutic value of zinc stearate dusting powders. Thirty-one believe that such powders have no advantage over other dusting powders, that they constitute a hazard to infant life, and that their use should be discouraged.

International Health Board uses Laboratory of State Board of Health as Training School for Fellowships.

Dr. Luang Vaidaya Vidhiker, of Bangkok, Siam, has been assigned by the International Health Board to a term of service with the laboratory of the Virginia State Board of Health. Dr. Vidhiker will spend the summer in Richmond and return to Johns Hopkins for additional work in the fall.

Mr. Aubrey H. Straus, director of the laboratory, who has been taking a special course leading to the degree of Doctor of Science, and has been in several classes with Dr. Vidhiker at Johns Hopkins, is now back at work in Richmond.

It is a custom of the International Health Board to assign to the Virginia State laboratory one of its students who are candidates for fellowships. Last year, Oscar Vargas, of Costa Rica spent the summer in Richmond, and he is now establishing a government laboratory in Costa Rica. Dr. Vidhiker will, of course, return to his country when his studies are completed.

Noted Chemists Named to Help Map Program for Benefit of Chemical Industry.

The appointment of an advisory committee composed of outstanding members of the chemical industry to co-operate with the Department of Commerce has been announced by Secretary Hoover. The purpose of this committee is to assist the chemical division of the department in mapping out a program of work which will be of the most practical and immediate benefit to the industry.

The membership of the committee includes Dr. Leo Bakeland, president American Chemical Society; Dr. A. S. Burdick, president of the Abbott Laboratories of Chicago, and formerly president of the American Drug Manufacturers' Association; Dr. H. E. Howe, editor of the *Journal of Industrial and Engineering Chemistry*; Dr. Charles H. Herty, president of the Synthetic Organic Chemical Manufac-

turers' Association; Henry Howard, chairman of the board of governors of the Manufacturing Chemists' Association; C. Ober, president of C. Ober & Sons, Baltimore, and past president of the National Fertilizer Association; E. C. Trigg, president of John Lucas & Co., Philadelphia, and president of the Agricultural Insecticide and Fungicide Association; A. Cressy Morrison, president of the Acetylene Gas Manufacturers' Association, and S. W. Wilder, secretary of the Manufacturing Chemists' Association.

Dr. and Mrs. Walton S. Shepherd

And their youngest son, of Charleston, W. Va., sailed for Europe, the latter part of June. Dr. Shepherd will attend eye, ear, nose and throat clinics in Vienna, during the summer, while Mrs. Shepherd and their son will tour the continent. Dr. Shepherd has many friends in this State, being an alumnus of the Medical College of Virginia.

Fellowships in Neuropsychiatry at University of Pennsylvania, Graduate School of Medicine.

Five fellowships in neuropsychiatry are available in the Graduate School of Medicine of the University of Pennsylvania. These fellowships have been established for the period of three years from October 12, 1925 by the Commonwealth Fund of New York.

No definite fellowship stipend has been fixed; but it will in each case approximate \$2,200 per annum. The precise stipend will in each case be designated by the fellowship committee.

The minimal qualifications for applicants are: (a) age, from 25 years to 35 years inclusive; (b) graduate of a Class A medical school; (c) one year's approved internship; (d) satisfactory references; (e) approval of personal and professional status. Each fellowship is upon the basis of three years' (36 months) work—one year fundamental, one year practical, one year investigative.

Applications are invited for these fellowships and should be addressed to "Dean, Graduate School of Medicine, University of Pennsylvania, Philadelphia."

The John Horsley Memorial Prize, University of Virginia.

This prize was established in February, 1925, by Dr. J. Shelton Horsley, of Richmond, Virginia, an alumnus of the University of

Virginia, as a memorial to his father, Mr. John Horsley, of Nelson County, Virginia.

The prize consists of two years' interest on \$10,000 in 5 per cent bonds and will therefore be presumptively \$1,000. It is to be awarded every two years by a committee of the Medical Faculty of the University of Virginia for a thesis upon some subject in general surgery. The term "general surgery" is used in a broad way and includes the specialties commonly associated with general surgery such as orthopedic surgery, urology and gynecology but not the specialties of the surgery of the eye, ear, nose and throat which have developed along lines which differentiate them markedly from general surgery. If no essay is considered worthy the prize shall not be awarded and the accumulated interest will be added to the principal.

The object of the prize is to stimulate an interest in the scientific aspects of surgery. In the past there has been some tendency to glorify the mechanical technic of surgery, and perhaps some neglect of its underlying scientific features. The donor wishes particularly to stimulate an interest in the underlying biologic principles with the hope that surgeons may not become mere operators but be imbued with a scientific spirit which will contribute to the advancement of surgical knowledge. With this in view the essay should be on a surgical problem, the solution of which depends solely or in large part upon research work, (preferably original research) in some branch of pathology, bacteriology, physiology, biochemistry or embryology.

All graduates of the Medical Department of the University of Virginia of not more than fifteen years standing are eligible for this prize and are invited to submit theses. In the discretion of the committee the prize may be awarded for work done by a medical graduate of the University of Virginia in collaboration with a non-alumnus of this institution but in such case the award will be given to the Virginia graduate alone.

The theses must be submitted to the committee in typewritten form and work that has not been previously published will be preferred. If the work has been previously published it must be presented in a new form. The committee will make suitable arrangements for the publication of the theses.

All theses entered in this competition must be in the hands of the committee on February 1st, of the year in which the prize is to be awarded. They should be addressed to the Dean of the Medical School of the University of Virginia. The prize is to be awarded for the first time in June, 1927, therefore the theses should be presented not later than February 1st, of that year.

Dr. W. R. Bracey,

Who has been associated with Dr. J. R. Blair at the Hygeia Hospital, for the past four and a half years, is now devoting his entire time to his private work, with offices at 2301 West Grace Street, Richmond. Dr. Bracey limits his work to surgery.

The Norfolk County Medical Society,

At its annual meeting, June 1, elected Dr. Stanley H. Graves president; Dr. J. Warren White first vice-president; and re-elected Dr. Lockburn B. Scott secretary-treasurer. All of these officers are of Norfolk, Va.

The Southside Virginia Medical Association

Met in Suffolk, June 9, with Dr. F. C. Rinker, Norfolk, vice-president, presiding. A good number of members and visitors were present and a free discussion of the papers read was indulged in. Following the afternoon session, the Suffolk doctors tendered the visiting doctors a banquet, after which the Society adjourned to meet in Petersburg, on the second Tuesday in September, 1925. Dr. R. L. Raiford is secretary of this society.

Dr. L. T. Price,

Richmond, was among the doctors who attended the annual meeting of Sons of Confederate Veterans at Staunton, June 17-19.

Dr. W. C. Harman,

Dolphin, Va., attended the meeting of the West Virginia State Medical Association at Bluefield, June 9-12.

Dr. H. G. Plaster,

Formerly of Leesburg, Va., is now located at 1769 Columbia Road, Washington, D. C., for the practice of his profession.

Summer Camps.

With proper sanitary facilities rightly used a summer camp, be it temporary or permanent, is a health-giving proposition. Without such facilities, or with wrong use of good facilities, a camp may quickly become a menace to the health of everyone in it. It devolves largely upon the tourist himself to see that

sanitary precautions are taken during his stay at a camping spot. The rule for your guidance should be, "leave the camp site in as good or better condition than you found it."

The most important thing to be considered in the "back to nature" movement, should be the purity of drinking water. Do not drink from any spring unless sure of the source of the water.

Guide Book for Motorists Published by Camp New York.

An attractively illustrated forty-eight page booklet entitled "Camp New York" describing the forty acre camping ground of New York City's first motor tourists' camp has been published, copies of which may be obtained by writing to the secretary, Camp New York, 191 Fulton Street, New York City.

This book also contains maps of the neighboring states with the routes of the main arteries leading to the Metropolis clearly defined. In an interesting style it briefly outlines the historical and important places which lure, daily, thousands of sightseeing tourists to The Wonder City.

Civil Service Positions Available.

The U. S. Civil Service Commission, Washington, D. C., announces the following open competitive examinations:

Physiotherapy aide, physiotherapy pupil aide, and physiotherapy assistant, receipt of applications to close July 25, August 29, September 26, October 24, and November 28, 1925:

Graduate nurse and graduate nurse (visiting duty), also for dietitian, applications for all of these positions to be rated as received until December 30, 1925.

Full information and application blanks may be received from the Commission, or the secretary of the board of U. S. civil service examiners at the post-office or customhouse in any city.

Wanted.

To buy practice in Virginia or West Virginia. Would buy office equipment or property. Reason for leaving present location; want to locate near high school. Graduate of Medical College of Virginia. References: West Virginia State Medical Association and County Medical Society. Nothing but a good proposition considered. Address answers to No. 415, care this journal. (Adv.)

For Sale.

X-ray equipment in good condition offered at very low price account closing private hos-

pital. Vertical and horizontal fluoroscopes (Victor) Scheidel transformer, also accessories. Address P. O. Box 468, Lynchburg, Va. (Adv.)

For Sale.

Medical books by best medical authors. Prices reasonable. Write for list and prices. Address No. 419, care this journal. (Adv.)

Obituary

Dr. Virginius Harrison.

A prominent physician of Richmond, died at his home in this city, June 6, after an illness of some time. Dr. Harrison was born in Richmond sixty years ago, and, upon completion of his academic education at Emory and Henry College, studied medicine at the University of Virginia, graduating in 1887. He was elected a member of the Medical Society of Virginia that same year and had continued a member since then. For some years after his graduation, Dr. Harrison did general practice, but later limited his work to obstetrics and was associate professor of this branch at the Medical College of Virginia, where he was held in high esteem by the faculty and students. He is survived by his wife, who was Miss Marie Keesee, of this city.

Dr. Oscar Littleton Powell,

One of the most prominent and beloved physicians of the Eastern Shore, died at his home at Onancock, Va., June 25, having been ill for a long time. Dr. Powell was a native of Onancock and fifty years of age. After an academic education at local colleges and Harvard University, he took up medicine at Jefferson Medical College, Philadelphia, from which he received his diploma in 1900. Following this, he served an internship at St. Luke's Hospital, Bethlehem, Pa., before taking up practice at his old home. Dr. Powell had been a member of the Medical Society of Virginia since 1902. He is survived by his wife and two daughters.

Dr. George Harrison Sparks,

Of Brandy Station, Va., died at his home at that place, May 21, following a long illness. He was born in Madison County, Va., in 1869, and, upon completing his academic education, entered the Medical College of Virginia, receiving his diploma from that institution in 1900. He joined the Medical Society of Virginia the same year and had been a member since that time.



THE PREVENTION OF HYDROPHOBIA (RABIES)



OF LATE a great many cases of rabies in dogs have been reported from various parts of the United States. These reports show that the infection is widely distributed. No section of the country is entirely free from rabies. The dog, from the very nature of his habits, is the main disseminator of this disease.

The physician is called on today as never before to guard his patients against rabies. Only one form of treatment is available—*preventive vaccination* before the appearance of symptoms.

Whitmore (Tice, Practice of Medicine) lists the conditions calling for antirabic vaccination after a dog bite, as follows:

1. If rabies is in the district, antirabic vaccination should be started at once and continued until the dog can be observed for ten days.
2. If the dog dies or is killed or disappears in less than ten days after biting the patient.
3. If the dog is unknown.
4. If the dog is living and after observation for ten days develops rabies, dies under suspicious circumstances, or is sick.

Rabies Vaccine (Cumming), prepared in the Biological Laboratories of Parke, Davis & Co., is a sterile suspension of brain tissue from rabbits killed with fixed virus (death with paralysis in seven days). The infectivity is removed by dialysis, while the full immunizing properties are retained. No report of injurious results to the patient following treatment has ever been received.

Few specific prophylactic agents present a record for dependability comparable to that attained by Rabies Vaccine (Cumming). During the many years that Rabies Vaccine (Cumming) has been supplied to the medical profession, not one complaint of distinct failure relating to this product has ever reached the Laboratories. Considering the many thousands of patients treated with Rabies Vaccine (Cumming), this is a truly remarkable record.

The Vaccine is obtainable on short notice by all druggists, being carried in stock under proper conditions for its preservation, by the home laboratory and our branches.

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 52, No. 5.
WHOLE No. 878.

RICHMOND, VA., AUGUST, 1925

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CALCREOSE

Intestinal Antisepsis

Attempts at intestinal antisepsis in the treatment of diseases of the intestinal tract that occur commonly during the hot summer months are considered important by many physicians. Creosote is regarded as an intestinal antiseptic of promise. Many physicians prescribe CALCREOSE for that purpose because it is a mixture of approximately equal parts of pure beechwood creosote and calcium oxid and can be taken for a long time without apparently causing any gastro-intestinal disturbance; nor do patients object to its long continued use.

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20 CENTS A COPY
\$2.00 A YEAR

Original Communications

PATHOLOGY OF CATARACT.*

By H. S. HEDGES, M. D., Charlottesville, Va.

Pathology of cataract—the story of the changes in the lens and its capsule, changes found in all the life cycle from that of the child unborn down to old age, and presenting a multitude of varying conditions whose successful treatment will always present problems that are ever new and difficult to the attending physician.

To review the microscopic changes found in all the many, many kinds, would be an imposition on the good nature of this company; though the corneal microscope with the slit-lamp illumination is showing us many changes which we could never see before. The lens has not been an easy subject for sectional study; and though so many thousand have been removed, in the average case the cortex, and the epithelium of the anterior capsule, where so many of the changes occur which we would like to study, are so broken up by the removal that we do not get a true picture of conditions as they existed in the living eye. But in every case of cataract that comes to us, so far as possible we should get an accurate knowledge of the nature and duration of the opacity, of its cause, if possible, its rate of progress, if progressive, the size of the nucleus and consistency of the cortex, its relation to the other structures of the eye, whether complicated or not, the relative condition of the two eyes, and last, but not least so far as our treatment is concerned, the age, economic condition, general health, and mental and physical state of our patient must all be taken into careful consideration.

The one end and aim of all our cataract work must be to secure for the patient the greatest possible amount of comfortable use of their vision.

How the varying pathological pictures which we find will influence us in handling the cases

which come to us will be the subject of our brief notes.

As to the average case of juvenile, congenital, traumatic or double senile cataract there is usually no question as to what is best to do, but we feel very strongly that in many cases of monocular cataract in the old and feeble, or even where there is only much difference in the maturity of the changes in the two eyes, operation is by no means always indicated, and in many cases is strongly contraindicated.

If in the case of an old or feeble patient there be a fully developed monocular cataract with the history of maturing slowly—and the older the patient usually the slower the rate—and the other lens is clear or shows only peripheral riders—especially if these be narrow—I believe that the cataract should be let alone. The chances are that the one eye will serve the purposes as long as life lasts. The operation for cataract is no small strain on the old and feeble; and with the other eye maintaining useful vision we all know that the aphakic eye will not be used, that its blurred image will often so disturb the other eye that a block will have to be worn, and the patient who was working comfortably with the one eye now worries you ceaselessly for glasses to use on the operated eye, and cannot understand why you do not give them. In other words, by operating, though it may be a perfect surgical success, instead of giving the patient more comfortable working vision, we have made it less so.

If, however, a younger person or one in still vigorous health, comes to us with a mature cataract in one eye, and the other showing definite signs of beginning trouble, we face a different problem, especially if the incipient riders are at all broad at their bases, or if there be any diffuse central cloudiness about the lens.

Such a case should be kept under close observation, and the mature lens removed before it shows the least sign of hypermaturity, or the other eye has lost its useful vision. Though the operated eye will not be used at

*Read as part of symposium on Cataract, at the meeting of the Virginia Society of Otolaryngology and Ophthalmology in Winchester, May 7, 1925.

first, and we find that the patient will cling to the use of the unoperated eye till the vision falls to 20/50 or even less, as soon as the vision does fail then the operated eye is ready for work.

When the cataracts develop equally, we feel that the operation should be done as soon as the patient can no longer follow his regular vocation or read in comfort. It is wrong to condemn such a one to months or years of waiting for the cataract to mature.

In the study of each lens we should determine whether or not it is due entirely to senile changes, or to some antecedent disease of the eye. History will usually determine the latter for us, but not always. We must look carefully for any signs of old synechiae or deposits of pigment on the anterior capsule—with fully dilated pupil.

It always seems to me that during the process of senile cataract formation the lowered vitality of the lens finally reaches a stage in which the lens can be compared to a dead lens, being macerated by the surrounding fluids. We know that in some cases this process goes on fairly rapidly and continuously; that in others it may stop for years, or never advance at all.

In these cases we are not dealing with exogenous noxious substances but they are due to changes in life (Vogt).

We know that over 90 per cent of lenses over sixty years of age show cataract changes. Why some go on to maturity, and others do not, we do not know.

The cataract due to other diseases of the eye, especially to disorders of the uveal tract, usually begins in the area of the posterior lens suture. The opacity is often rosette-shaped, as it extends in the direction of the suture, and shows an irregular porous or pumice-like structure, due to the development of vacuoles. Especially in the axial direction and in the area of the sutures the opacity extends directly forward into the cortex in the form of very irregular crumbly white opacities, surrounded by a thin white nebula. This porous structure, and the tendency to extend forward into the cortex, are important points of differentiation between the complicated and the senile types. In the latter there is no axial thickening. Often in the complicated type the opacity may not be in the center of the lens.

We must carefully determine the size of the

nucleus, and the amount and consistency of the surrounding cortex.

A dark lens usually means a large nucleus. We are all familiar with the dusky black cataract in which the nucleus has enlarged till there is no cortex left.

We must study the condition of the suspensory ligament, and the relation of cortex to capsule. If we find fine vacuolation just under the anterior capsule, we know that the lens will shell out easily (if we are to do the capsulotomy operation).

Signs of hypermaturity should be carefully noted—the loss of the stellate markings, the dirty yellow look, the more or less tremulous iris, deep chamber, and often the dark nucleus lying at the bottom of the capsular sac will show us what to expect.

While in the old a cataract often develops very slowly, in younger persons, in middle life, or between thirty and fifty, it will often mature in two or three months.

An interesting case came under our care last fall. A man of thirty, who at one time had been a drinker, developed a very severe case of Vincent's angina—so severe that for weeks it was almost impossible to get him to take food or fluids of any kind—pain of swallowing was so great that he would not swallow, and the bowels so irritable that enemas could not be retained.

Marked symptoms of pellagra developed, and he was reduced almost to a skeleton. As he began to improve, he noticed dimness of vision, but attributed it to weakness.

When first seen by us, vision was reduced to about 20/70, and reading large print. Fundus could be but dimly seen in either eye through what looked like a mass of fine foam (vacuoles) spread out over the anterior face of the posterior capsule, with broad riders shooting out into the cortex behind the center of the lens.

In less than two months useful vision was gone, and operative measures taken for his relief, to which he would not consent till he became so blind that he had to be led about by the hand.

In this case I believe that we had a parallel to the cataract developing in late cholera—the great loss of body fluids causing abstraction of fluid from the lens, with consequent separation of the fibres and later degeneration and vacuolation as fluid was absorbed again. On opera-

tion the lenses were uniformly opaque, firm, and separated easily from the posterior capsule.

Often the question arises: Is the opacity progressive, or is it not?

While often only repeated observation can answer the question, still the form and look of the opacity will often tell us much about it. If clear-cut—especially if round (circular)—like the typical anterior polar, or the hyaloid remains at the posterior pole, we can be reasonably sure that it will not increase. If there be a uniform haziness, or it shows much of the stellate structure of the lens, the chances are that it will progress.

As we come to the other end of the age scale, we find totally different types and conditions to face. Heredity here plays the leading role, as indeed it probably does also in the senile type.

We find the congenital cataract, the result of intrauterine inflammation or degeneration, also the lamellar and juvenile types—sometimes the result of tetany, perhaps from endocrine disorders—certainly often hereditary, as three successive children in one family seem to demonstrate.

The average lamellar type I believe is best let alone—at least till the patient is old enough to find out how much he can see.

The congenital and juvenile should be operated early, to avoid amblyopia from lack of use; but we should be cautious as to prognosis in these congenital types. With faulty development of the lens, many other intraocular defects may be found; and still worse, many of these children are congenital idiots.

In traumatic cataract, much must depend on the age of the patient, the size of capsular laceration, the involvement of other structures of the eye, rapidity of swelling and resulting tension.

Posterior cortical cataract, as the result of a bruise, can clear up entirely.

In a child or young adult, extensive laceration of the cortex often results in complete absorption of the lens, but after thirty or thirty-five years of age the well-developed nucleus will not absorb, and usually operation must be done if vision is to be restored. But here, too, the question of operation is a debatable one—at least it is to me. If I had a perfectly quiet traumatic cataract, and the other eye

was working in comfort, I would let the cataract alone.

I know the advantages of having the cataract out, but I also know that in the best of hands the removal of a traumatic cataract is not always free from danger, and that if ever the time should come when I needed the injured eye, it would not have been lost from lack of use.

Sometimes it is better to bear the ills we have, than to fly to those we know not of.

TREATMENT OF CATARACT.*

By JOS. A. WHITE, M. D., Richmond, Virginia.

PREVENTION OR ARREST OF LENS OPACITY.

There is no such thing as prevention of cataract. Except in familial cataract, it is impossible to predict who will, or who will not have cataract. It occurs in the healthiest of people, in people who never had a sick day in their lives, and who have never exhibited any organic trouble and who, even after cataract has begun to appear, are still free from any apparent contributing cause after the closest scrutiny by an internist. Also there is no discernible cause in the eye itself. How can we explain this? Whilst there are certain organic diseases which we know have some influence on the development of cataract, the majority of cataract cases are not victims of these diseases.

ARREST OF LENS OPACIFICATION IS ALSO A MYTH.

Dionin, electricity, lens antigen serum, cyanide of mercury injections are vaunted by some authors as reliable agents in its arrest, but as yet no one has satisfactorily demonstrated their utility. Lenticular opacities sometimes spontaneously disappear. I have seen this long before dionin or these other methods were ever heard of. If any of them had been used in such cases the wonderful results of these remedies would be loudly proclaimed by those who had used them, and I am satisfied where such apparent cures have been recorded they were cases of this kind. I have watched so-called incipient cataract for years, where good vision was retained because of its very slow progress, and the cases did not live long enough to come to operation.

PREPARATION OF PATIENT.

I read now and then of elaborate preparation of patients for weeks, or even months, prior to

*Read as part of symposium on Cataract, at the meeting of the Virginia Society of Otolaryngology and Ophthalmology in Winchester, May 7, 1925.

operation, and I often wonder why this is necessary. Apart from an ordinary physical examination to determine the presence of some dyscrasia that might have some influence on the question of operation and the chances of success, I have never seen the necessity for this.

A careful examination of the eye, the light projection, the field, the tension, and the mobility of the pupil, etc., to find any contra-indication to operation, is of course, necessary; and in immature cataract to determine a patient's sensitiveness to lens antigen, is all that is needed. Also, it is my habit to have an examination of the conjunctival secretion to determine the presence of any infective organisms, whether from the conjunctiva itself, or the lachrymal sac: all this a day or two before operation.

Everything being normal the night before the operation, I irrigate the conjunctival sac, cleanse the lids and lashes and fill the eye with bichloride ointment, apply a dressing and bandage and leave it on the eye until it is uncovered on the table.

Some use nitrate of silver solutions. I have never done so as my method has proved satisfactory in preventing post-operative infection. Just before operating, I sometimes inject one-half of 1 per cent solution of novocain into the temple to block the facial, and prevent any trouble from lid pressure. Moreover, in very nervous patients, I give a hypodermic of $\frac{1}{8}$ grain of morphine and $\frac{1}{200}$ grain of hyoscine.

When the eye is uncovered, I irrigate it again, drop 25 per cent argyrol or 2 per cent mercurochrome in the eye and follow this with cocaine four per cent, repeated every five minutes for three applications. When the eye is ready for operation, I put a drop of adrenalin and a drop of 1 per cent atropine in the eye, then make the section with a conjunctival flap, do a small iridectomy, a peripheral capsulotomy, and press out the nucleus and cortical remnants until I get a black pupil. But, sometimes, if I find difficulty in removing all the cortex, I let it alone to be absorbed, rather than continue pressure, as I may cause striped keratitis or rupture the hyaloid. I do not irrigate the chamber, as I have caused the hyaloid to rupture by overdoing irrigation. Some operators use a suture as a regular thing, either corneal or conjunctival. I have only tried a

corneal suture once, regarding it as an unnecessary complication and sometimes a source of danger. The one time I made use of it was in a case of degenerated cataract complicated by a uveitis in a soft eye that gave some promise of sight by removing the lens. When the section was made a stitch was put through the cornea and used to draw the anterior lip of the wound forward to open it for introducing the instruments and I found it worked well. The conjunctival suture I have used several times when conditions would indicate a possible loss of vitreous, so as to close the wound rapidly if this should occur.

The eye is cleaned by warm saline or boric acid solution, filled with sterile vaseline, and pad, bandage and mask applied. The after treatment is simple—just let them alone; twenty-four hours of lying on the back in bed, twenty-four hours on the side, 2 days propped up in bed, two or more days propped up in a chair, and leaving the hospital in seven or eight days. I never look at an eye under four days, because looking at it does no good, and if there is any primary infection (which is almost unknown), we know of no way of saving the eye. If patient will consent to give the time, I always do a preliminary iridectomy at least a month before the extraction, a small coloboma with a corneal section well within the sclero-corneal margin, so that the cut will not puncture the conjunctiva at the edge and spoil my flap in the extraction.

Some of these cases require a secondary needle operation, due to some cortical remains not absorbing, or to wrinkling of the capsule.

This is seemingly a lot of surgery in contradistinction to the removal of the lens in its capsule, but all the same this is what I want done to me when I get cataract.

Cataract makes the patient blind. The object of treatment is to restore sight. Operation is imperative. Whilst there are various methods of doing them, I believe the extracapsular operation offers the best chances of success to the greater number, even if it takes more time and more than one operation at times. The Smith Indian operation, when successful, gives the most perfect result. In fact, any intracapsular operation, whether by the tumbling method, the traction method, or the vacuum method of Barraquer, when successful, gives equally brilliant results. I have tried both the former, never the latter, although I

saw Dr. Barraquer operate on twelve cases in Richmond. The results of his operation did not convince me of its value over my own. These operations are not applicable to all forms of cataract, whereas the extracapsular operation is. If I were to adopt any other method than this, it would be the *traction method*, simply lifting the lens out of the eye with suitable capsule forceps. When this fails, the extracapsular operation can complete the job. The extracapsular operation with a competent and expert operator, and a healthy eye, rarely has a loss of vitreous, which is much more common in the other method and reduces the chances of success. I have no patience with the authors who speak as if vitreous loss is a matter of no moment, when every ophthalmologist with any experience knows it is a serious matter, even if there are no immediate bad results, because it may open the door to various subsequent changes in the eye that will damage it.

Of course, the long experience I have had in treating and operating on cataract, over forty years, and seeing others do it, has made me fully aware of the extraordinary amount of surgery and other injuries an eye can stand, and still be a useful organ. A perfectly classic operation may be a failure; a bungling mess of an operation may be successful in restoring sight. A badly complicated cataract, if the patient has good light perception, ought to be operated on just as a simple case. One of the worst cases I ever did an extraction on was a man named Willis with a staphyloma in one eye and with an old plastic iritis, the iris adherent to the capsule, the pupillary space entirely gone and no anterior chamber, in the other. One of my colleagues tried an iridectomy, got a little marginal hole, and then passed him over to me. I also tried an iridectomy and was lucky enough to get a somewhat larger one down and in, with part of the capsule, as he had no chamber and the lens capsule and iris seemed to be one agglutinated mass. Later I passed a cataract knife behind the iris through the lens and split capsule, iris, and cornea upward with one sweep, removed the nucleus with a spoon and today he has 20/50 vision and reads No. 1.

I simply refer to this case to show that even the most unfavorable cases can recover sight,

whilst some of apparently most favorable ones have sometimes an unfortunate outcome.

These remarks about treatment are my own conclusions from what I used to think was a great experience (about 2,000 extractions), but when I read about one man doing over 50,000 extractions, I feel that I am only a very small fish in the cataract pond, and only more or less of a piker compared to Dr. Smith and others with such astounding records.

200 East Franklin Street.

DISCUSSION OF DRS. HEDGES' AND WHITE'S PAPERS
ON CATARACT.

Dr. Emory Hill, Richmond: I should like to emphasize certain safety measures in cataract extraction. The Van Lint method of injecting the upper branches of the facial nerve does away with spasm of the orbicularis. Lid elevators held by an assistant instead of a speculum are an additional precaution. Subconjunctival injection of cocaine when the iris is to be handled secures deeper anesthesia of this structure.

Dr. Frank M. Hanger, Staunton: I enjoyed very much the papers just read by Dr. Hedges and Dr. White. I always do the two-step operation in my cataract work; that is, a preliminary iridectomy and later the extraction. Dr. White mentioned the importance of carefully disinfecting the eye before a cataract operation, but failed to state that a dacryocystitis precluded the operation, and was accepted by all surgeons as a contraindication.

However, I know a specialist in New York City, who, after disinfecting an eye with a one per cent solution of nitrate of silver, had the temerity to do a cataract extraction, complicated with dacryocystitis, and got by with it. Such risks can be taken, in large cities, but, if I should do this in my town and lose an eye, I would be forced to move out. At the first meeting of this Society, in Lynchburg, I read a paper describing an operation, which I had devised, nine years previously, for the cure of dacryocystitis. I had published a similar paper in *The Laryngoscope*, in 1915. The operation is comparatively easy, and I have had uniform success with it, having cured fifteen of seventeen cases operated. The underlying principle of the operation is the conversion of the nasal duct into a gutter, by cutting away its inner wall up into the lachrymal sac.

I am at a loss to understand why, at least, some of the members of this Society have not adopted it. I actually took the trouble to go to Washington, D. C., and read a paper before the Ophthalmological Society of the District of Columbia, and told the members of that society that I would let any of them have my instruments to be duplicated. As yet, I have heard nothing from them. I presume they are extirpating the lachrymal sac, as they have been doing for years past.

I am thankful to say, I have never extirpated a sac, and do not have to answer for that sin. I regard such a procedure as unwarranted, and an unpardonable piece of surgery, especially since we now have a simple and easy operation for the cure of dacryocystitis.

In this connection, I wish to report a case I recently had, a cataract operation complicated with dacryocystitis:

A lady, aged 72 years, who had had the trouble for thirty-five years, and had been treated by two specialists without benefit. As a further complication, she had a maxillary sinusitis and an ethmoiditis on the same side.

I first drained the antrum and curetted the anterior ethmoidal cells, and after effecting a cure, performed my operation successfully.

A month later, I did an iridectomy, and in six weeks extracted the lens, without the least infection at either operation.

When I dismissed her, she read 20/20 and Jaeger No. 1, and enjoys the distinction of being the only person in this country who has had, as far as I have been able to ascertain, a dacryo-cystitis cured, normal drainage restored into the nose, and a cataract operation done, with a perfect result.

SOME OBSERVATIONS OF THYROID PATIENTS.*

By J. M. EMMETT, M. D., Clifton Forge, Virginia.

When one considers the indecision existing today concerning the question of thyro-toxicosis, no apology need be offered for bringing it again to your attention. The diagnosis, differentiation, and treatment are still problematical. There is, however, a renewed interest in the subject and it is probable that much information may yet come from students working along this line. At present observers are offering you their opinion with the proviso that ultimately they may have to retract all of their teachings. No one is willing to say that he has established the last word in the study of thyroid patients.

Grossly, there are four types of thyroids which we wish to discuss; namely, colloidal, adenomatous (simple non-toxic), adenomatous toxic (secondary hyperthyroidism), and exophthalmic (primary hyperthyroidism). This classification, as you will readily see, does not take into consideration the other and very important diseases of the thyroid gland. However, if we focus our attention on this simple classification, we will not become confused in our discussion.

The colloidal goiter is the accumulation in the alveoli of the cellular secretion—iodo-protein—or colloidal secretion. It is probable that the colloid acts only as a suspension, under normal conditions, for the iodine. This type of goiter requires little attention, unless there is associated an adenomatous development. Rarely does this type of goiter require surgical treatment, unless the patients are definitely suffering from pressure symptoms. The work of Marine and Kimball would seem

to indicate that a number of such cases are benefited by the judicious use of iodine. Certainly no disaster is to be anticipated when iodine is used in such patients under the age of twenty. Marine suggests that the first reaction from deficient iodine content is the deposit of colloid, with the development of a diffuse colloidal goiter, which we recognize as the adolescent type of gland. It may be stated, from our present information, that iodine administration is absolutely a safe treatment in children under the age of twenty, who do not have palpable thyroid glands, and that it may even be useful and reasonably safe in children under this age who have small colloidal goiters. However, its administration to older patients, having no palpable enlargement, or small nodules, or large colloidal goiters, may be a procedure to regret. The work initiated at Akron, Ohio, by Marine and Kimball is safe and sane. However, the indiscriminate feeding of iodized table salt as advocated by certain proprietary drug houses for general family use should be condemned, because it is not infrequent that a patient carrying around a supposedly harmless adenoma, may have a resulting secondary hyperthyroidism thereby developed.

The simple adenomas of the thyroid gland may be single or multiple. They are the types of thyroids that Kocher describes as "meaty." They may demand treatment for cosmetic or mechanical reasons, or because of the development of toxic symptoms. It is this group of patients which require much conscientious advice. The tendency of these patients, with non-toxic adenomas, to develop hyperthyroidism increases with age. Even without the development of the classical evidence of hyperthyroidism, the tendency to cardio-vascular disturbance increases each year in goiter patients. The simple adenoma patients requiring treatment are applicable to only one type of treatment and that is surgery. X-ray and radium offer them nothing, and the administration of iodine has only the opportunity of producing in them a disseminated secondary hyperthyroidism.

The toxic adenoma, or secondary hyperthyroidism, is, in its beginning, a benign adenoma. The creative factor, in the production of the hyperthyroidism in the adenomatous goiter, is usually obscure, but probably is associated with unknown changes in the iodine

*Read before the meeting of the Medical Association of the Valley of Virginia, Clifton Forge, Va., June 4, 1925.

intake, inasmuch as it is recognized that the intentional administration of iodine will produce this picture in endemic goiters. After this hyperthyroidism has been produced, the limitation of the iodine intake will not control the functional activity of the adenomatous tissue. After this secondary hyperthyroidism has been produced, it is not believed that the administration of small doses of iodine will produce any exaggeration in symptoms for a limited time. However, its administration for a matter of weeks would prove disastrous. Hence iodine is used by some clinicians to differentiate between primary and secondary hyperthyroidism. There occur a certain number of patients in whom there is great difficulty in differentiating *secondary* hyperthyroidism from exophthalmic goiters. It has been suggested that iodine in these patients might prove of diagnostic value, providing of course that a careful check is kept upon their clinical course.

It is in the handling of exophthalmic goiters that another procedure of approach has been supplied by Dr. Plummer, who, in June, 1923, reported his preliminary communication before the Association of American Physicians. His findings were based on a careful report of 400 cases suffering from exophthalmic goiters. His study included careful basal metabolic observations and the general clinical course of these patients. Until recently, no effort has been made to differentiate between the clinical adenomatous goiter with secondary hyperthyroidism, and the exophthalmic or primary hyperthyroidism. Dr. Plummer's work is based on the theory that the symptoms resulting from the secondary hyperthyroidism from adenomatous goiters are due to an excessive normal thyroid secretion; whereas, in the exophthalmic type, there is an unknown stimulation of the thyroid gland and the quantity of thyroid secretion in the cells of the body is increased and a great amount of it is imperfect. His efforts are directed towards improving and modifying the abnormal thyroid secretion by the use of iodine, believing that the thyrotoxin molecule was not completely iodized. This belief is in accordance with chemical studies of Kimball.

Clinically Dr. Plummer's work has proven uniformly satisfactory when proper attention is paid to the selection of cases and when iodine is given only to the exophthalmic group. There

is an early and a moderately well sustained clinical improvement in a large percentage of these patients, with a perceptible drop in the basal metabolic estimation. The maximum improvement seems to be arrived at in about ten days, after which time there seems to be a gradual subsidence back into the old state of toxemia. Occasionally this improvement is not observed because we are giving too small doses of iodine. Dr. Plummer emphasizes that this treatment for exophthalmic goiter is not curative and it should not be used as such. The reports of its use as a permanent and a substantial control of hyperthyroidism have occurred possibly in patients destined to run spontaneously a short course ending in complete recovery. With the use of iodine, these patients will undoubtedly run a milder and less severe course than might be expected without its administration. Unfortunately we have no information as to what an individual patient, with exophthalmic goiter, will do untreated. The mass of evidence seems to indicate that these patients reach a certain stage of improvement, and, when iodine is withdrawn, retrogress into their old stage of hyperthyroidism. Therefore, we are of the opinion that iodine is principally valuable to prepare patients for operation and to lower the operative mortality.

The question of diagnosis in early primary or secondary hyperthyroidism should receive the best attention we have to offer. It is believed that many cases of autonomic unbalance, or neuro-circulatory asthenia, are yearly subjected to thyroidectomies. Such a mistake is a catastrophe and our patients are frequently rendered hopelessly crippled as a result of our operative intervention. I am aware that ordinarily frank thyro-toxicosis presents, clinically, symptoms that are unmistakable. However, we are frequently confronted with a type of patient in whom the diagnosis of thyroid disease is most difficult. It is well to remember that the tachycardia, or so called *neurasthenia*, subsides during sleep while the tachycardia of hyperthyroidism continues at this stage—dependent, of course, upon the degree of toxemia. We are of the opinion that the laboratory aid afforded us by the estimation of the basal metabolism is one of the most important determinations of thyroid diseases. There are a limited number of other conditions which will produce an elevated basal meta-

holic reading, but generally they are clinically unmistakable, with the possible exception of diseases of the pituitary gland. It might be said that the information supplied us by the basal metabolism, in determining rates of oxidation, is beyond question. It should be recognized that the test is not a simple one and the greatest care and most complete equipment should be available. It is also important to establish definitely that the patient is not under a high tension, and, consequently, not in a basal state. However, when this test is properly carried out, it is our one most important aid in diagnosis. The degree of toxicity is of paramount interest in these cases, especially so when operative procedures are contemplated. We do not wish to appear to minimize the information gained from clinical examinations. However, the pulse rate, the nervous system, the change in blood pressure, and the loss of weight, lack that exactness which is furnished by basal metabolic estimations.

In December, 1924, a symposium on diseases of the thyroid was reported in *Surgical Clinics of North America* from the Deaconess Hospital, in Boston. Considerable attention was given to the pre-operative preparation and the post-operative care of toxic thyroid patients. Too much emphasis cannot be placed upon this phase of thyroid surgery, inasmuch as it is frequently a determining factor in our results. The multiple stage operation was discussed at length, both from the standpoint of testing out the patient's susceptibility to operative trauma and to the proper preparation for the final thyroidectomy. We have frequently felt, in our own clinic, that we were probably doing needlessly many ligations. However, we know of no way to accomplish good results in these patients, except by this method. One very important feature of the report from the Deaconess Hospital was the study of a series of fifty patients suffering from definite cardiac disease, which was directly attributable to thyroid intoxication. They were termed thyro-cardiacs. Thirty-nine of this group of patients were suffering from auricular fibrillations when seen. Nine of these patients gave a history of repeated attacks of auricular fibrillation. One patient in this group, who did not have auricular fibrillations, was suffering from chronic nephritis, and the other had an active tuberculosis with

a polyserositis. To this class of patients we have been inclined to offer what we thought was conservative advice, meaning, of course, to treat only the cardiac manifestations symptomatically—no surgical procedure being advised. It is believed today that these patients, with auricular fibrillations, and even with a moderately advanced cardiac decompensation, may be safely subjected to thyroidectomies, and often they are improved to such a degree as to be able to resume their occupations. Within the past five months we have personally observed two partial decompensation cases, following thyroidectomies, who lost their cardiac distress, and who returned to their occupation as operative railroad men. I am sure all of you can visualize patients who have visited you in years gone by, seeking advice for cardiac disease, which you can attribute now to a definite thyroid history.

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EUGENICS OR RACE DETERIORATION—WHICH?

By W. A. PLECKER, M. D., Richmond, Va.
State Registrar of Vital Statistics.

I wish to congratulate the Augusta County Medical Society upon the leading position that it has taken in selecting the subject of Eugenics for its symposium on this occasion. Other Medical Societies may have discussed it in this manner, but I know of none.

I wish also to express my appreciation and gratitude for the invitation which you have extended to me to take part in the discussion of this subject, surpassed in importance by none. The conclusions presented to you today are the summing up of the experience and observation of twenty-five years in the gen-

*Read before the Augusta County Medical Association, May 6, 1925, as part of symposium on Eugenics.

eral practice of medicine, followed by nearly thirteen years of unequalled opportunity as State Registrar of Vital Statistics, in which capacity these conclusions have, of necessity, been developed and crystallized.

By the term Eugenics is meant the science of improving stock, whether human or animal. It is based upon the fact that either superior or inferior qualities may be transmitted from parent to child, and, as in animal breeding, the good may be preserved, and the evil eliminated by proper mating.

To secure good results for families, and, through these, for the State or Nation, it is necessary, by education and by law, to prevent the marriage, or illegitimate mating, of feeble-minded, epileptic, and hereditarily insane and criminal individuals and those with serious transmissible diseases and defects, or of members of the white race with those of any other race. The preservation of the white race is a true eugenic measure as is well set forth by the author of "White America" who says: "It may readily be seen that the negro problem is a part of the greater problem of heredity. When eugenics seeks to eliminate the unfit and establish the fit it has for its purpose not the betterment of physical types merely, but the establishment of those types of greatest value to progressive civilization.

A race devoid of creative genius is an unfit type so far as progress in civilization is concerned and is a matter of concern for the eugenicist. Those who seek to maintain the white race in its purity within the United States are working in harmony with the ideals of eugenics. Asiatic exclusion and negro repatriation are expressions of the eugenic ideal."*

Education of the young, in particular, and for this end, of their parents and teachers also, is necessary to secure the best and most positive eugenic results of correct selection in marriage. The science of Eugenics has, perhaps, not advanced sufficiently to enable us to lay down for the public absolute rules of guidance. At present we may only point out and prevent the danger from the increase of such defectives as have been referred to above, giving out, in a general way only, information for the guidance of those who would enter

thoughtfully into the serious and important relation of marriage.

Wiggam says: "At least three-fourths of the misery in the world is due to the simple fact that the wrong people got married. Marriage, when children are expected, should be a privilege bestowed by society solely upon the fit. Parentage is not a natural right, and it should be withheld from the unfit."

"By applying one-tenth as much science in mating human beings as we do in mating animals, we would probably add more to the health and happiness of our children and grandchildren than can be done by all the medical discoveries of the next hundred years."*

DIVORCES

One of the subjects assigned for study to our office is that of the prevalence and causes of divorces in Virginia. The first cause in real importance, though not first in actual count, is unfaithfulness to the marriage vow by one, or possibly both of the partners. This cause, though not most frequently stated, on account, perhaps, of the difficulty of proof, is the underlying one, in a large per cent of the most frequently stated cause, desertion.

These two together, constitute nearly 97 per cent of the total number, cruelty being the third with 2 per cent.

In nearly 62 per cent the husband is the guilty party.

When we consider that existing habits are not easily broken, it might be possible to calculate with reasonable certainty that a man of dissolute habits will remain faithful to his mate only so long as he has no inducements or opportunity to act otherwise.

Immoral tendency is a matter of inheritance, and is either increased or retarded by evil or good environment.

With the knowledge of the family history of an individual, together with his own reputation or known habits, which may usually be learned, if not already known, it is possible to apply the rules of eugenics and estimate with reasonable certainty the likelihood of the individual with whom marriage is contemplated remaining true to his marriage vows, and of his children inheriting high or low standards of virtue.

As the breaking up of a home by divorce is

*White America, by Earnest Sevier Cox, the White American Society, Richmond, Va.

*The Fruit of the Family Tree, by Albert Edw. Wiggam, Bobbs Merrill Company, Indianapolis, Ind.

a serious matter to the State as well as to those whose happiness is directly involved, this question should receive more serious consideration from a preventive standpoint.

TRANSMISSIBLE DISEASE AND PHYSICAL AND MENTAL DEFECTS

If it were possible for our office to secure more than fragmentary statistics as to the immense importance of syphilis as a destroyer of human usefulness and life, we could give out to the people of the State information that would be startling in the extreme.

This knowledge has been amply supplied by the records of hospitals and the private work of careful physicians.

Dr. Herman N. Bundesen, Health Commissioner of Chicago, in a chastely written pamphlet, "EVERYBODY'S PROBLEM," gives out information which should be broadcast throughout the land. He says: "This is a warning, for at the present time, despite vigorous measures of repression, a contagious disease exists and the records show that already many persons have been or are infected. It has attacked practically half the boys under thirty years of age, a large number of young women, and many little babies. In the hospitals there are many cases, but the facts have been handled with such suppression of publicity that little has leaked out to arouse the people.

"I believe it is time that the public should be informed. And I hope that each householder who receives this official warning will co-operate whole-heartedly with me in order to protect his own family.

"There are cases in your own block or perhaps in your own apartment building, or boarding house. At your club, at your restaurant, at your office there are people who come from homes touched by disease.

"Unless your co-operation can be secured, there will be more victims of this contagion within a year than were numbered in the United States casualty list during the entire war in France."

Dr. Bundesen reproduces in his bulletin a striking chart prepared by the American Social Hygiene Association of New York in 1919, in which syphilis, inclusive of all deaths under other classifications that should be ascribed to syphilis, is shown as the greatest of Death's agencies.

This chart places the death-rate from syphilis per 100,000 of population as 222, while tuberculosis is rated second with 141.6.

While it is believed that this rate, though true for the larger cities, is in excess of our rural Virginia rate, yet our office cannot present any estimate based upon our own statistics to show that it is far wrong.

While it is not claimed that syphilis is handed down from former ancestors as a part of the germ-cells which carry heredity, it is true that the spirochaetes causing the disease in the child before its birth, are passed on from its mother, the child thus acquiring the disease at the very beginning of its life.

Forty years or more ago, before Koch's discovery of the tubercle bacillus, it was the universal belief that tuberculosis was an inherited disease. The result of that belief was that it was considered unwise to marry into a consumptive family.

As the result of Koch's discovery, the encouraging message was sent abroad that tuberculosis is not inheritable, but that it is acquired by direct individual infection.

While this message is undoubtedly true and while many do escape tuberculosis whose parents, grandparents or other relatives were victims of it, yet we must not overlook the fact that some soils are much better adapted to the growth of the bacillus than others, and that this susceptibility is inherited, passed on from generation to generation in the germ plasm.

We recently received a letter from an old gentleman telling us that all of his relatives had been remarkably free from disease and that all had lived to a good old age, the need of physicians being unknown in his family.

There is nothing remarkable in this statement when we remember that such a condition is inherited, and should be treasured as the family's most valued possession. Such heritage passed on to a child is of far greater worth than a fortune that may be counted in six or even in seven figures. To pass on to a child such a heritage just one thing is essential, and that is entirely within the control of his parents.

This essential is that the prospective father and mother who themselves come from such sturdy stock, use their heads as well as their hearts, and see that they do not make the fatal mistake of marrying into a family of weaklings, whether that weakness be physical, men-

tal or moral. Were there enough such mates to go around, and could each be so fortunate as to find one of that sort, then with proper environments we could produce a nation of stalwarts prepared for any and all emergencies.

If, however, one parent comes from such stock and the other from a family of the opposite type, one child may inherit the characteristics of the father and the other of the mother. These children may again either improve this stock and preserve the best half of their heritage for their children, or they may still further reduce their valued possession transmitted by the sturdy parent, by either a wise or an unwise choice of mates.

It should be a matter of great concern to the State or Nation as to what proportion of the population is of the highest type, what proportion is of the degenerate class, and again what proportion belongs to the third or middle class, which after all, constitute the majority of its citizenship.

There are other diseases or conditions, however, more dreadful than those referred to, which we know to be inheritable, passed on from remote generations, and sure to go on forever if no break occurs by accident, or by design of the State.

These are feeble-mindedness, epilepsy, certain forms of insanity, and criminal and immoral traits of character. To these may be added a nervous weakness or irritability, manifest in all the ordinary acts of life or developed by worry and strain, which would be resisted by a person of greater inherited stability. Soldiers of this type furnished our "shell-shock" victims. Neurasthenia and other forms of nervous instability, though directly induced by environment, really have their origin in the original germ plasm passed down from the parents.

The length of this paper does not permit the further discussion of this subject now already familiar to all intelligent persons, further than to say that State-wide education in eugenics and the general practice of common sense and care in the selection of marriage mates by our young people, offers the best opportunity we possess for race improvement.

Caring for our great army of derelicts, in insane asylums, epileptic colonies, reformatories, jails, alms-houses and penitentiaries, all of which is necessary for the protection of the

community, constitutes one of the greatest burdens borne by the tax-payers of the State. This burden is, perhaps, more than doubled by the still larger body, as yet on the outside, who are increasing their kind at a fearful rate.

Why, therefore, should our legislature delay in the adoption of other measures offering reasonable hope of checking the increase of these degenerates, thus taking further practical steps for its own protection, and for the improvement of the race stock? We must not forget that the 1924 Virginia legislature led the world in its passage of the Racial Integrity law, and placed itself in the forefront with the few States requiring the sterilization of those unfit for parenthood.

ILLEGITIMATE BIRTHS

This subject is considered here not strictly as an eugenical one, but because it constitutes one of the sorrows of our office, and because it is in a great measure an index to the state of morals of the young people of our State. The fact that it is a growing evil we take to mean that the moral fibre of our people is becoming weaker, and that the former high moral standard of our young women, as well as of our young men, is breaking down. Whether due to an actual decline in the character of germ cells from an unwise crossing of lower types with those that dominated the civilization of Virginia prior to the War between the States, or whether due to changed environments, or in part to both, we cannot answer with certainty. In 1917 there were 3,554 births out of wedlock, or a rate of 53.5 per 1,000 births. These had increased in 1923 to 3,680, with a rate of 56.9.

While it is true that an overwhelming proportion of these births are colored, it is a fact that the white rate is actually increasing more rapidly, and that Virginia holds the unenviable position of first of the registration States in its white illegitimate birth-rate. We do not accept the flattering explanation which has been suggested, that our statistics on this point are nearest complete.

We find that in this number are included teachers, nurses, stenographers and others of the higher class workers, indicating that the evil is not confined to the lower strata of society.

When we consider the small proportion of delinquent acts that reach the stage of final

record in our office, the situation is really appalling, and is almost surely worse than a generation ago, though we have no statistics to prove it.

That the last line of the defense of our homes, the purity of our young women, is yielding, is indicated not only by our own statistics, but by reports from different, but trustworthy sources.

The remedy is evidently, so far as environment will go, the exercise of greater parental control of our young girls, and of boys as well. We would do well to go back to the safer English custom of restraint and chaperons.

Much may be hoped for through judicious education in high schools and colleges. The young minds should have impressed upon them the necessity for race betterment, which can be attained only through a high standard of individual and family life. They should be shown the danger of marriage with those whose conduct indicates that they are members of families in process of degeneration, even though they may possess wealth and a veneering of superficial politeness.

True depth of character and honesty of purpose should be demanded.

RACE INTERMIXTURE

This phase of the subject is discussed last, as it represents the climax of eugenic breakdown, which when it has occurred can by no possibility be corrected.

The stern hand of the law may take in charge the feeble-minded, the insane by inheritance, the criminal, the immoral and the physically unfit and say that they must by imprisonment or sterilization be prevented from transmitting their taint to posterity. It might be imagined that society may reach the point when such efforts meet with complete success, but we cannot imagine the possibility of undoing race mixture and of ever restoring either race to its former purity when that has occurred. Neither is there any known method of preventing the increase of this intermixture when it is once well on the way as it is in Virginia and in large parts of our country, both North and South.

This intermixture, which began soon after the negro was introduced into this country in 1619, has gone on and on until now it has reached serious proportions, and there are thousands in our State who are constituting

themselves a third race, with sub-division of the middle one based upon shades of color and texture of hair.

This is best illustrated by citing as an example the case of a woman of light color who with her black husband visited one of our Richmond colored churches. The usher politely invited her to go up near the front, but suggested that her companion remain in the rear. A quick glance revealed the fact that the congregation had been graded off by color, the light ones at the front, the medium in the middle, with the black in the rear. The couple left, and the woman has reported to the family by which she is employed, that the same conditions exists, not only in the churches, but in colored society in general.

This unfortunate third race created by the sins of the more responsible white, as well as the too-willing blacks, is now in the position of being rejected by the whites, while they themselves reject the blacks.

Many of these by the constant infusion of new white blood, illegitimately, and by guarding against further black admixture, are gradually, generation after generation, growing whiter and whiter, until individually, they find themselves able to break across and intermarry into the white race.

This has in the past been legally possible through the weakness of the law of Virginia, as in practically all of the Southern States, permitting a person of one-sixteenth negro blood being classed as white. In the north, twenty States, including the District of Columbia, have absolutely no barrier, in some no record even being kept on marriage licenses as to color.

The new Racial Integrity law of Virginia, which forbids the intermarriage of a white person with one of any trace of colored blood has called a halt and is staying the progress of intermarriage, but has spurred to open defiance a number of large groups, in all nearly 2,000, of those who claim a trace of Indian blood.

The old birth, death and marriage records of our office reaching back to 1853, show that in practically every case as far as we have investigated, the claim of Indian origin, except remotely in some cases, is unfounded. The correctness of these records has been confirmed by numbers of old citizens with knowledge handed down in the family for two or

three generations. These have either written us signed statements, or visited our office and submitted to stenographic interviews.

These more recent records are in exact accord with statements made in Howe's history of Virginia in 1845, and in the U. S. Bureau of Ethnology reports.

We are gradually confirming these historic statements by study of individual families as we have the time, and the information to start upon, and are discovering just where additional negro blood has been introduced since 1853 into the group containing the greatest amount of Indian blood, as well as into the others.

Even with our present knowledge, which we are constantly adding to, we feel justified in agreeing to the historic statements that there are probably no native born Virginia Indians free from Negro intermixture, and that there are no native Indians who are under the one-sixteenth Indian exception of our Racial Integrity law entitled to intermarry with white people, regardless of the amount of additional white blood which they may have secured.

These so-called "Indian" descendants, of "free negroes" usually, have not only been exercising quite freely the privilege of intermarrying with whites, but have been exercising the additional privilege of riding in white coaches and street cars and attending white schools, not allowed to others of negro-white composition, who make no claim to being Indian.

It is necessary for our law to be amended by the next legislature repealing the Indian exception. That will then automatically relieve our office of the fierce struggle we have been compelled to maintain to disprove the claims of these self-styled Indians.

Physicians, usually, are faithfully endeavoring to secure accurate statements as to the color of the parents in reporting births.

The saddest feature of this situation is the fact that a considerable number of degenerate white women are giving birth to mulatto children. The facts in the office of the Bureau of Vital Statistics are really too sickening to discuss.

This is a time when the practice of ordinary eugenic measures is too slow and too weak. The State must strengthen its present law and enact another to prevent if possible some of the illegitimate intermixture, by making the

father responsible for the expense of the mother's confinement and for the support of the child till fourteen years of age.

It may not be generally known that there is now a law with a heavy penalty forbidding illegal relations of persons who cannot legally marry. This law, however, needs strengthening and enforcement.

The situation is a serious one and demands rigorous methods of control. One of the great needs is county and city officers with vision and courage to enforce our laws, together with fearless citizens to back them up and testify to what they know.

This country is the last stronghold of the white race. When we succumb and when our American civilization is destroyed by racial amalgamation there is no other to take its place. This is a situation in which there can be no compromise. There is no place for maudlin sympathy for these unfortunate people. It is for the white race to decide what its composition shall be, and to say to the others "you shall not pass."

If the State would make sufficient appropriation to employ capable assistants, and pay for the necessary postage and printing, it would be possible for the Bureau of Vital Statistics to build upon its present foundation of records, old and new, and by drawing upon those of the various State institutions, if adequately preserved, to develop a work of real eugenic value. We are able already to make invaluable use of our old birth, death and marriage records, and rarely search them without success, to establish the race of an individual or family, when supplied with sufficient information as to names and ages.

With all sources of information made available, it would be possible then by a system of propaganda and intensive education, especially in the schools, so to raise the ideals of the general public that it would desire better things and would apply to our Bureau for facts and advice before entering upon matrimony, and assuming the greatest of all responsibilities, that of raising new citizens. These would then by such means be more likely to be a blessing and a power to the State than a curse and hindrance. The raising of a large family of high type children should be looked upon as a special privilege and blessing.

Since the State needs all of the best class of citizens it can secure, and since modern birth

control propaganda is successful in reaching only this more thoughtful class, and not the feeble-minded and other undesirables who usually bear families of eight to twelve children, such propaganda, and the sale of the means of accomplishment, should be absolutely prohibited under heavy penalty.

May it not be possible that in this little gathering of Augusta County physicians there may develop in this eugenic symposium a beginning that will grow into greater things, which shall even rival in value that other great gift to the world, Woodrow Wilson.

This great Virginian himself, was descended from a long line of Presbyterian ministers, and is an outstanding example of eugenic selection in the production of the highest type of Americans.

THE DIVINE PLAN OF RACIAL INTEGRITY.*

By REV. W. E. DAVIS, Staunton, Va.
Pastor Second Presbyterian Church.

The purpose of this discussion should be clearly understood. No attempt is made to demonstrate a divine plan of Racial Integrity either from ethnological, physiological, or psychical evidences. Such evidences exist in abundance, but to the more thoroughly informed student of history, or the specialist in the fields of physical and psychic phenomena will be left the task of presenting them. Our observations have been confined entirely to the field of revealed religion, or, to be more specific, to the Holy Scriptures as they are generally accepted among nominally Christian communities. The Scriptures have been examined with the quest in mind of discovering whether the Author of Revelation disclosed a purpose of racial purity in the Divine guidance of certain race members of the human family.

One distinction should be clearly observed, and that is between nationalities and races. When the latter term is employed it sometimes denotes only national groupings and at other times refers correctly to the three great groupings commonly known as the Caucasian, Mongolian, and Ethiopian. When Edwin A. Grosvenor, LL.D., declares "Racial purity anywhere in Europe is a figment of the imagination," he refers evidently to national purity

and not to purity of race. Revelation shows that this threefold division which is accepted today had its origin in the family of Noah following the flood, and the careful student of history will find abundant verification of the prophecy made by Noah concerning the descendants of his three sons. This possible explanation of the threefold division of the human family places that division at the very fountain head, and subsequent Divine injunctions against the intermarriage of nationalities were based sometimes upon racial distinctions. The words of the great apostle to the Gentile world spoken on Mars Hill, Athens, "God hath made of one blood all nations that dwell upon the face of the earth, and hath before determined their appointed seasons, and the bounds of their habitations" is not only "the profoundest word ever uttered in explanation of human history," but is verification of the racial origins in the one man, Noah, and of the divine institution of the lines of cleavage.

If, according to Revelation, there was Divine separation of the nations, and a world-wide distribution after the confusion at Babel, was there any other effort other than geographical allocation to preserve the racial lines? The course of Revelation after the great separation is confined to the fortunes of one family and the rather insignificant nation, speaking politically, that grew out of that family. This nation, the Hebrew, sprang from the eldest son of Noah, and belongs to the second great division, the Semitic race.

The members of the patriarchial family were very jealous lest the sons of the house should intermarry with the native stock of Palestine, and intermarriage within the family itself was practiced to keep the race stream pure. While the Divine hand does not appear on the surface in this, there is the inference that this precaution was adopted through Divine influence. The descent of the Hebrews into Egypt was as a family of seventy members, whence it came out a fairly numerous people. For four hundred and thirty years they had preserved their racial purity and had not been absorbed by the political and social forces of Egypt. Of course, the preservation of the pure Hebrew stock during these years of practical bondage was due in part to the separate residence in Goshen, but there seemed to have been an operation of a higher law that

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accounts for this remarkable phenomenon of human history.

As racially distinct as was the family of Jacob, it appears that so distinct were the Hebrews upon their departure from Egypt. The record of Revelation indicates that just as purity of Israel's stock had been guarded in Egypt, so was it to be preserved in their new home, Canaan. While still en route to this destination of their pilgrimage, their great lawgiver, Moses, speaking with divine authority, pronounced the edict forbidding them to intermarry with the tribes of Canaan. This law seems to have had equal authority with the other laws which separated the Hebrews and made them the chosen channel of further divine Revelation. An examination of the origins of the various tribes that surrounded the Hebrews in Canaan reveals the fact that the edict of separation imposed upon the Hebrews was not entirely based upon religious grounds. The corrupting influence of heathen religion appears on the surface as the cause of Israel's isolation, but an examination of Genesis, the tenth chapter, shows that the tribes of Canaan were descended from the second son of Noah and were members of another racial branch. It is of interest to note that the most modern discoveries of archaeology confirm the opinion that both the Egyptians and the Canaanites were racially distinct from the Hebrews. These discoveries indicate that Egyptian and Hittite civilizations were originally Ethiopian, and the Semitic-Hebrews, therefore, were of a different race.

Following the settlement of the land and the turning of the Hebrews to peaceful pursuits, there seems to have been a disregard of the provision forbidding intermarriage with the tribes of Canaan, and the attendant religious corruption was not the only evil result. The judges who were the divine spokesmen for the period pled for a reform in this particular first and predicted their utter failure should amalgamation with the Hittite descendants continue. Their efforts met with some success and at the close of the three hundred year period when the national consciousness of Israel first began to assert itself, there seems to have been generally a preservation of the racial stock.

That the succeeding period of the history of the Hebrews was not marked by faithful allegiance to racial distinctness is shown in the fact

that their royal family intermarried with members of other races. This, of course, had its resultant effects upon the general populace and Revelation shows that the greatest disaster befell both the royal house and the nation in general because of these unholy alliances. The prophetic spokesmen of the period are frank in declaring that Israel's most illustrious king made a failure in his marriage with heathen women. His alliances not only corrupted the religion of Israel, but resulted really in the division of the nation. The close of the period of the kings was marked by the invasion of Semitic forces from the East and the capture and banishment of both divisions of the nation, the northern in 722 B. C. and the southern in 586 B. C. The Chronicler of the period is faithful to declare that one cause among others of the national disaster was the fact of intermarriage with other races.

The re-establishment of the Hebrew nation in Jerusalem with the permission and assistance of the great conqueror, Cyrus, presents us with another strange historical phenomenon. The greatest divine spokesman and leader of this period was undoubtedly Ezra and second to him, Nehemiah. It is striking to find that both of these leaders in the rehabilitation of the country and the re-establishment of the Hebrew religion demanded separation of the Israelites and the re-observance of racial purity among them. Their measures seem even harsh and unjust to us today, but marriage relations were compelled to be broken that had been established between the Hebrews left in the land and their heathen neighbors.

The struggles of Israel during the subsequent centuries were more for the perpetuation of national existence than of racial distinctness. However, it must be said to their praise that so pure was the stream of the race kept that when the Supreme Man of all the races was to appear, He came of a family whose pure Hebrew genealogy could clearly be given reaching back to the father of the nation itself. This unique man in whom the members of all nationalities were to find an ideal and a counterpart could have said of himself even as his greatest exponent said of himself. "I am a Hebrew of the Hebrews;" the product of practically pure racial lineage.

And now may we review the evidence of a Divine plan of racial integrity or purity. Divine revelation accounts for the threefold

racial grouping that we generally recognize today and specifically testifies to the latest teachings of science that in blood they are one. Further it accounts for the division and distribution geographically according to the linguistic characteristics, a method of classification so popular among ethnologists. Again, in order to furnish the world with the revelation of ethical religion, a nation was reared and from the time of its inception until the fulfillment of its mission carefully guarded against intermarriage with other nationalities that were racially different. Finally, when divinity itself came to be incarnated in human nature, it was in a personality, with a genealogy proving racial purity for generations and centuries, that this incarnation took place. These are the evidences that revealed religion furnished a Divine plan of racial purity.

EUGENICS IN RELATION TO THE INSANE, THE EPILEPTIC, THE FEEBLE-MINDED AND RACE BLENDING.*

By J. S. DEJARNETTE, M. D., Staunton, Va.
Superintendent Western State Hospital.

Genesis or reproduction is an inherent power and urge of every normal adult, being from the primordial protoplasm to the highest organized creature. The law of the jungle tends to the survival of the fittest. The weaklings fall by the wayside before maturity, or are shoved aside or killed by the stronger males during sexual excitement, and so the "fit" survive.

Inherited tendencies in domesticated animals must be watched for in order that desirable qualities may be developed and the undesirable eliminated. Again in the vegetable kingdom we are guided by our knowledge of the laws of inheritance. If we wish good fruits and vegetables we must sow good seed.

To attempt to prove the importance of good seed and well bred animals would be insisting on an obvious fact to 90 per cent of our people.

Alas, it is only in human breeding that the laws of heredity are almost entirely ignored and dysgenics run riot. The insane, epileptics, alcoholics, syphilitics and feeble-minded are allowed to reproduce with but little restraint, and as far as man's genesis is concerned the worst is as good as the best. When worked out in the sweet pea family by crossing reds and white, Mendel's Law showed that the type

of one parent or the other is predominant in the offspring, though the offspring has the power to transmit the quality of the parent which it does not resemble. The characteristics shown are dominant and the latent characteristics which can be reproduced are recessive, e. g., a red pea crossed on a white produces either a red or white pea; this offspring will produce 3-4 like one parent and 1-4 recessive.

If two of the recessives are bred together they continue to breed recessive constantly. If the dominant members of the third generation are bred together they divide themselves into two orders; one-third of these members produce dominant offspring, and two-thirds are true hybrids, showing a mixed character, and each subsequent generation from them shows the same proportion of pure dominants, pure recessives and hybrids.

So far as it has been possible to make observations this law holds fairly true in the animal kingdom. Mendel's Law is practically in its infancy, having received little attention until after Mendel's death in 1890, but it has started our feet in the right direction "if we but follow after," and persistently strive to free society and the State from the dependent classes of feeble-minded, criminal, epileptic, syphilitic and insane, by using the law given us by him.

The feeble-minded are a great menace to our citizenship. We have probably 12,000 or more in our State, and it has been estimated that one feeble-minded woman will bear three children to the college graduate's one.

A family which cannot support itself on account of its mentality should not be allowed to reproduce.

There is said to be one idiot to every 2,500 of our population, but the idiot rarely reproduces and is consequently self-eliminative.

A survey should be made of the State and a public record kept as to its dependents and especially as to its feeble-minded children and children of the insane and epileptic. These records would be of untold assistance when applications are made for marriage licenses and to our criminal courts, as the feeble-minded are largely in the majority among our criminals. About 70 per cent of feeble-mindedness can be traced to heredity. When one parent is feeble-minded it approximately follows Mendel's Law; when both parents are feeble-minded

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by heredity all offspring are feeble-minded. The feeble-minded from disease and traumatism during birth and infancy are not liable to produce feeble-mindedness in their offspring.

Inherited syphilis is not strictly speaking an inherited brain defect, but the result of spirochaetes at work.

I believe we should have an eugenic society in every county and city in the State with a secretary devoting his entire time to securing data as to the dysgenic situations in his territory, keeping records, examining school children as to mentality, and lecturing on eugenics before the students of the high schools.

Courses in eugenics should be required in all colleges as the students and teachers (a most desirable class, under the present system) are practically sterilized, especially when compared with the feeble-minded and colored races.

Cox says we are in very much more danger from the tar brush and the mulatto brother-in-law than from negro insurrection.

RACE BLENDING

Miscegenation and amalgamation has been the inevitable end in all history where two or more races have dwelt in the same country and this has been the history of the three original races, the white, yellow and black when dwelling in close contact. E. S. Cox in his book "White America" says that the white race has made civilization, that the yellow race when left to itself can hardly maintain a civilization, and that the black race cannot continue it.

He holds that the advancement of the yellow and black races is due to contact with the white; therefore, it is all important that the white race be kept pure in order to advance civilization, and it is equally important for the yellow and black races since their only advance must come from the lift of the white. If the white race is deteriorated by miscegenation then the advance of civilization will cease.

The deteriorating effects of miscegenation are to be found in the history of the Egyptians. This white race maintained a high degree of civilization until its mixture with yellow-black blood, black predominating. From this mixture was formed a white-yellow-black mongrel race, and in the twenty-fifth dynasty, it was ruled by Taharka, a mulatto king.

India has a similar history. Beginning with

a white ruling class she foresaw the danger of a mongrel race, and made the splendid laws to prevent this calamity. These iron-bound class laws coupled with religion would possibly have prevented the blending of the races, but the curse of illegitimacy broke the castes, and to-day India is a white-yellow-black race.

Other civilizations that have deteriorated by colored contact are those of Abyssinia, Nigeria, Uganda, Mashonaland, Babylonia, Persia, Cambodia, Ceylon, Java, New Zealand, Northern China, Korea, Japan, Yucatan, Peru and Hayti.

The above statements are quoted from E. S. Cox's "White America," a wonderfully interesting book.

The amalgamation continues even though the first crossings may be few, since the mongrels continue to cross with each other and so the melting pot is kept boiling in spite of laws forbidding such unions. These unions made legal blacken the white race, while illegal unions whiten the black race. It is best for all and should be the object of each race to be kept pure.

SUGGESTIONS

Segregation of the races is the only way to keep each race pure. Much has been written on the subject with little or no effect; illegitimacy continues to mix the blood streams and make the mongrel man.

Our immigration laws should be made more and more stringent, admitting only the most desirable of our predominant race. Australia admits no colored races to settle in her territory.

Parenthood should be encouraged among those with best hereditary traits, and discouraged among defectives by segregation and sterilization. Wages should be regulated according to the number of children and the mental quality of parents.

Registration of family pedigrees, traits, etc., should be required, for certainly we should know as much about our proposed husbands and wives as we do about our cattle and dogs. The study of matings with classified records might be helpful in giving us a better race.

Competition among the children in various counties in growing crops and breeding animals for prizes offered on best products and essays on methods would tend to make them more careful in selecting their own mates in later years. An exhibit of Mendel's theory of

inheritance with the blooming peas, properly labeled at the County and State fairs, would be instructive, and demonstrations with paper flowers could be made very impressive and would be inexpensive.

Birth selection and control is the ideal for eugenics. Excessive breeding caused Malthus to weep over the future as he saw a starving world by over-population.

Virginia passed a sterilization law in 1924 which is now being tested by the courts. This law deals with the insane, epileptic and feeble-minded confined in the State Institutions, and when it becomes operative, it will sever the black thread of inheritance, give many segregated people their liberty and save untold suffering, crime and expense in the years to come.

Allow me to quote a few verses of my own composition suggested by Mendel's Law:

MENDEL'S LAW

Oh, why are you men so foolish—

You breeders who breed our men
Let the fools, the weaklings and crazy

Keep breeding and breeding again?

The criminal, deformed, and the misfit,

Dependent, diseased, and the rest—

As we breed the human family

The worst is as good as the best.

Go to the home of some farmer,

Look through his barns and sheds,

Look at his horses and cattle,

Even his hogs are thoroughbreds;

Then look at his stamp on his children,

Lowbrowed with the monkey jaw,

Ape-handed, and silly, and foolish—

Bred true to Mendel's law.

Go to some homes in the village,

Look at the garden beds,

The cabbage, the lettuce and turnips

Even the beets are thoroughbreds;

Then look at the many children

With hands like the monkey's paw,

Bowlegged, flatheaded, and foolish—

Bred true to Mendel's law.

This is the law of Mendel,

And often he makes it plain,

Defectives will breed defectives

And the insane breed insane.

Oh, why do we allow these people

To breed back to the monkey's nest,

To increase our country's burdens

When we should breed from the good and the best.

Oh, you wise men, take up the burden

And make this your loudest creed,

Sterilize the misfits promptly—

All not fit to breed.

Then our race will be strengthened and bettered,

And our men and our women be blest,

Not apish, repulsive and foolish,

For we should breed from the good and the best.

DIPHTHERIA.*

With Special Reference to Some Peculiarities of the Disease in Infancy and Childhood.

By WM. B. McILWAINE, M. D., Petersburg, Va.

The disease diphtheria, in spite of the advances made in the past few years, still takes its toll among our children. Why is this? Theoretically, with the discovery of the Schick Test and the use of toxin-antitoxin in early childhood, we should be able to immunize the coming generation so that diphtheria will be as rare a disease as smallpox. This is our hope and our aim, and its accomplishment depends largely upon three factors, (1) the convincing of the medical profession of the efficacy of these methods, (2) the requirement of compulsory tests, and (3), municipal or state administration of toxin-antitoxin. I shall not go into these more fully at this time, as I wish to make the disease and its peculiarities the subject of this paper. There is absolutely no need of rehearsing the history or etiology of this disease, nor to describe its usual clinical course. Every mother knows about the "white spots on her child's throat," and thinks at once of diphtheria. When the child begins to have difficult breathing, all of our profession and most of the laity think of laryngeal diphtheria, or the so-called membranous croup. If the physician were called in time I doubt very much that a single case of faucial or laryngeal diphtheria would be lost from the direct disease itself, but it is some of the rarer forms of the disease, some of the peculiar places where the bacillus finds lodgment and works its havoc without being recognized until too late, that I would bring to your attention today.

The first of these is nasal diphtheria. As the name implies, in this disease the Klebs-Löffler bacillus finds lodgment in the mucous membrane of the anterior nares and grows there. The manifestations of the disease are, (1), persistent nasal discharge, (2) generally blood tinged discharge, (3) excoriation of the upper lip, (4) diphtheria bacillus found on culture.

The disease runs a chronic course for several weeks and does not appear to be very virulent, but, at times, palatal and other paralyses occur. I have seen only one complication of this kind in the past three years, and it was due to the late administration of antitoxin, or rather to the toxins of the disease which

*Read before the Southside Virginia Medical Association, 1924.

had not been controlled by the early administration of antitoxin.

A very interesting, and to my mind important, phase of nasal diphtheria is the so-called diphtheria of the new-born. Much controversy has been waged concerning the pathogenicity of the bacillus in the nose of the newly born. Probably the most extensive work was done by Kritzer, at Giessen, who examined 451 new-born infants for nasal diphtheria. In 130 cases clinical symptoms were present. Of these, 34 per cent were positive for diphtheria, 10 per cent showed atypical diphtheria, and 56 per cent were negative. Of the positive cases two died, of the negative cases seven died. These figures seem to show as this author says the unimportance of the so-called nasal diphtheria of the new-born. Now, it is well known that the infant has a certain amount of protection from the mother, but just how certain no one knows. Statistics given by Dr. Kerley are 7 per cent of positive Schick Test in the new-born. By this we know that some may be susceptible to the disease. If 7 per cent of new-born infants have no protection, we should be on the lookout for the disease in every new-born infant who shows any symptoms, for it may be in the 7 per cent of unprotected.

In the past two years I have seen four cases of nasal diphtheria in infants under three months. One of two and a half months, one of one month, one of three weeks, and one of two weeks. The first, aged two and a half months, had a violent diarrhea, which was controlled by treatment, but the child developed a nasal discharge excoriating and blood tinged. On culture the diphtheria bacillus was found. This was overlooked by the attendants until too late and the child died of typical heart collapse. Case two developed difficulty in breathing, snuffles and mouth breathing with slight nasal discharge not bloody and only slightly excoriating. I saw the infant at the end of the first month. A very questionable membrane was seen in the nose, cultures were taken, which were positive for diphtheria. Antitoxin was given and infant recovered, but had a paralysis of the palate and had to be tube-fed for a while, finally it made a complete recovery. Case three was seen in consultation at the end of the second week. The infant could not nurse on account of nasal stoppage. It was ap-

parently very ill, temperature 103° , rapid pulse and visible membrane in the nasal cavity. Diphtheria was suspected and as the umbilical cord was in a very questionable condition, the infant was brought to the hospital. A direct smear revealed the diphtheria bacillus in the nasal cavity. Antitoxin was administered, the cord received vigorous antiseptic treatment, argyrol was instilled into the eyes and nasal cavities and the infant entirely recovered.

Case four was seen in consultation at the end of the third week. For two weeks it had suffered with snuffles, and a serous blood tinged, excoriating nasal discharge. The infant looked toxic, with a slightly elevated temperature, and nursed badly on account of the stoppage in the nose. A culture revealed the diphtheria bacillus. Antitoxin with argyrol instilled in the eyes and nostrils controlled the disease in three days.

These cases are reported to bring to our attention the fact that there is such a clinical entity as nasal diphtheria in the newly born, with definite symptoms and signs, which is cured by the administration of antitoxin. Personally, I believe all of these infants would have died unless the disease had been recognized and antitoxin given, for even though they might possibly have overcome the toxin of the diphtheria, yet they were rapidly going into marasmus from being unable to suckle properly, due to nasal stoppage. I shall always hereafter culture all suspicious cases of difficult nasal breathing in the new-born and administer antitoxin if the Klebs-Loeffler bacillus is found.

The second peculiar place for the diphtheria bacillus to lodge and grow with rapidly toxic results is the post nasal space. This space, warm, dark and filled with blood vessels from adenoid tissues, is an ideal breeding place for the bacillus, and, due to the vascularity, absorption is rapid. Textbooks are far too inadequate on the subject of diphtheria in the post nasal space. Personally, I have seen four cases in the past year. One was uncomplicated post nasal space diphtheria. The patient had 5,000 units of antitoxin but succumbed to the virulence of the disease before more could be administered. In this case the child had typical heart block, with pulse of eighteen. Cultures from the post nasal space were positive, while throat cultures were negative. The

other three cases were complicated by scarlet fever, and therein lies the difficulty of diagnosis, for we know that scarlet fever can give a membrane almost identical with the diphtheria membrane, and this confuses us, let me say, however, that diphtheria in the post nasal space may never form a visible membrane, but simply a purulent looking discharge is seen pouring out of the post nasal space when the child gags on throat examination. Of these three cases complicating scarlet fever, all were given antitoxin, but too late in two of them. Both of these had virulent scarlet fever. One died a typical diphtheria death from heart failure, the other died apparently from the toxin of scarlet fever or from the bronchopneumonia which developed, but the diphtheria bacillus in this case was isolated by the bacteriologist of the Petersburg Health Centre and injected into guinea pigs for the routine tests for virulence. It was found to be a virulent strain of the diphtheria bacillus. That it had its part in causing death can hardly be doubted.

These cases are reported to show the virulence of the diphtheria bacillus in the post nasal space and to remind us to be on our guard for it, especially in scarlet fever cases. In my opinion, all scarlet fever cases should be cultured for a questionable cross-infection, and, if any doubt exists, antitoxin should be given. Some workers claim that the positive diphtheria cultures obtained in scarlet fever cases are harmless and that these cases are not truly diphtheria. I shall certainly hereafter take no chances, having seen two cases this winter with absolutely positive evidence that the diphtheria bacillus was not only virulent, but a very thunderbolt of death. Culture every case on the first visit, and administer antitoxin on the slightest suspicion will be my motto from now on.

Antitoxin is the only curative measure we have for diphtheria anywhere in the body. Antitoxin can be given from one day up and I have yet to see a single bad effect from its administration, nor is there such a thing as an overdose. Small doses may result in a fatality. Overdoses never do.

In conclusion, then, I desire to bring before you for discussion the subject of diphtheria in all of its phases, but especially its early diagnosis and antitoxin administration in some of the rarer manifestations of the disease.

THE RELATIONSHIP BETWEEN DISEASES OF THE BILIARY TRACT AND DIABETES MELLITUS.*

By I. A. BIGGER, M. D., University, Va.,
and
H. B. MULHOLLAND, M. D., University, Va.

The etiological factors in the production of diabetes mellitus have not been conclusively proven, although its association with a deficiency in the internal secretion of the pancreas is definitely established. Cecil, quoted by MacCallum¹, in studying a number of cases of diabetes, found pancreatic lesions in more than 87 per cent, the islands alone being affected in 12 per cent.

The biliary apparatus and tracts are closely associated, anatomically and embryologically, with the pancreas. These structures are all developed from the same segment of the primitive gut. In the majority of cases the pancreatic duct opens into the common bile duct immediately before the latter enters into the duodenum. The lymphatics from the bile passages, gall-bladder and pancreas, anastomose around the head of the pancreas. As a result of the relationships above described, two avenues for the transmission of infection from the biliary apparatus to the pancreas are obvious. The other possible modes of transmission are by the blood stream, and through direct contact. It was previously thought that the most frequent mode of transmission was through the ducts. This was thought often to occur, as in Opie's original case, in which a small stone blocked the opening into the duodenum and allowed bile to be forced into the pancreas. Sweet² believes that chronic pancreatitis is a lymphangitis, secondary to a focus of infection in the wall of the gall-bladder. The work of Judd and Mann³ would seem to support this theory. These investigators showed that a pressure of from 500 mm. to 1,000 mm. of bile in the ducts was necessary to produce an acute pancreatitis. They further showed that the secretory pressure of the liver did not exceed 350 mm. of bile. Only when the animal vomited, with the duct ligated, did the pressure reach as high as 1,000 mm. of bile. Therefore, they conclude that only in exceptional circumstances is bile forced back into the pancreas under sufficient pressure to produce a pancreatitis.

*From the Departments of Surgery and Internal Medicine, University of Virginia Hospital.
Read before a session of the Warren-Rappahannock-Potomac Counties Medical Society, April 28, 1925.

Fallon⁴ reports three cases of acute pancreatitis, all of whom had gall-stones in the gall-bladder, but not in the ducts. Watts⁵ reports seven cases of acute pancreatitis, five of whom had gall-stones in the gall-bladder, and one of these had a small stone occluding the ampulla of Vater. Moynihan⁶ states that pancreatitis is generally due to gall-stone irritation.

Granting that diseases of the biliary tracts may have a causal relationship to pancreatitis, as a natural sequence it is possible that certain cases of diabetes may have their origin in diseases of the gall-bladder and ducts. Moynihan states, "the importance of the early recognition and treatment of chronic pancreatitis cannot be exaggerated, for the disease if left unchecked may produce such sclerosis of the gland that the whole secretory substance and the Islands of Langerhans may be destroyed. The result is diabetes."

Enstis⁷ reports thirty-six cases of alimentary glycosuria observed over a period of several years. Fifteen of these showed definite symptoms of gall-bladder disease, and six developed diabetes.

Lichty and Woods⁸ report twenty-five cases of disease of the biliary tract, associated with glycosuria. Among these were three cases definitely diagnosed diabetes mellitus, which were apparently cured by operation on the biliary tract.

Rabinowitch⁹ states that 80 per cent of the cases of gall-bladder disease in the Montreal General Hospital showed hyperglycemia. In a biometrical study he found that nine times as many patients with disease of the gall-bladder and bile passages had diabetes as would be expected by the law of probabilities. In patients with pancreatitis there were forty times as many diabetics as the law of chance would allow. He concludes that from this point of view a casual relation is demonstrated.

Jones *et al*¹⁰ in a study of sixty-eight cases of diabetes found evidence of gall-bladder disease in 22 per cent, and in over half of their cases they found a diminution in one or more of the pancreatic enzymes. They consider cholelithiasis one of the most important factors in the etiology of diabetes mellitus in older people.

Frissel and Hajek¹¹ report a case of catarrhal jaundice—which is considered to be an infection of the biliary system—in a girl eight years of age, who later developed diabetes mel-

litus. Two of the same family with epidemic jaundice had a transient glycosuria. Koleczek¹² reports a similar case.

Joslin¹³ thinks it not unreasonable to suppose that disease of the pancreas may lead to destruction of the islands. Several of his cases showed definite improvement when the gall-bladder symptoms subsided. On the basis of this he advises all nondiabetics with gall-bladder disease to be operated upon, and diabetics with symptoms of gall-stones to have them removed when circumstances permit.

In a study of thirteen autopsies on diabetic patients, performed at the University of Virginia Hospital, the following associated conditions were noted:

Chronic cholecystitis, cirrhosis of liver, chronic pancreatitis	2	15.3%
Chronic cholecystitis with chronic pancreatitis	1	7.7%
Cirrhosis of liver with pancreatitis	1	7.7%
Gall-stones in gall-bladder and pancreatitis	1	7.7%
Atrophy of pancreas	3	23.1%
Chronic pancreatitis	3	23.1%

Five cases, or 38.5%, showed lesions of the biliary tract. Eight cases, or 61.6%, showed evidence of a pancreatitis. Five patients, or 38.5%, showed lesions in both the biliary tract and pancreas.

In this connection we wish to report an interesting case which we have recently observed:

Mrs. M. S., white, aged forty-seven years. Admitted to the University of Virginia Hospital, January 25, 1925, complaining of severe pain in the epigastrium and right hypochondrium.

F. H.: Unimportant.

P. H.: Unimportant.

Present Illness: Ten months before admission she began to suffer with ill-defined abdominal pain associated with general weakness and indigestion. Two months before admission she developed pain in the upper right quadrant of the abdomen, and ran a temperature as high as 102°. At this time urinalysis showed sugar. She was kept in bed for about two months on a low carbohydrate diet, and under this regime showed considerable improvement until three days before admission, when she developed a very severe pain in the epigastrium, radiating to the right shoulder and towards the left, and accompanied by nausea and vomiting.

Examination: Showed a somewhat undernourished white woman about fifty years of age, apparently very ill. There was no clinical jaundice. The heart and lungs were essentially normal. Abdomen was moderately dis-

tended throughout, most markedly so in the epigastrium. There was considerable rigidity in the epigastrium and right hypochondrium, associated with quite marked tenderness. Liver dullness was normal, but an indefinite mass could be palpated in the gall-bladder region. There were no signs of free fluid in the peritoneal cavity. Temperature 102°, pulse 140, respiration 24 to the minute. Leucocytes 30,000. Urine showed a large amount of sugar, acetone and diacetic acid. Blood sugar 142 mg. per 100 c.c. of blood. Carbon dioxide combining power of the venous blood 44.1 vols. per cent. She was given 1,800 c.c. of 5 per cent glucose solution, subcutaneously and intravenously, with fifty units of insulin preparatory to operation. Under gas-ether anesthesia the abdomen was entered through an upper right rectus incision, the gall-bladder found distended with pus and to contain gall-stones. The pancreas was definitely thickened and indurated, but no evidence of acute pancreatitis was noted. There were no stones in the bile ducts. Cholecystostomy was done, the stones removed, and a rubber tube sutured into the fundus of the gall-bladder for drainage. Cultures from the gall-bladder showed *B. Coli*.

The following day the blood sugar was 83 mgm. per 100 c.c. of blood, and the carbon dioxide combining power of the venous blood was 37.1 vols. per cent. Urine showed no sugar but acetone and diacetic acid. She was again given glucose and insulin.

Two days after operation the blood sugar was 52 mgm. per 100 c.c. of blood. Carbon dioxide combining power 51.3 vols. per cent. No further insulin was given. During the second twenty-four hours she excreted 2.1 gms. of sugar.

On the third day the blood sugar was 138 mgm. per 100 c.c. of blood. Carbon dioxide combining power 56 vols. per cent, and urine negative. At this time she was placed on full liquids, remained sugar free and showed no further acidosis. Several days prior to discharge the patient was placed on a regular diet, which she was able to take without showing any evidence of diabetes.

DISCUSSION

It seems to be the consensus of opinion that pancreatitis is often associated with disease of the biliary tract, and that chronic interacinar pancreatitis is at least in the majority of cases

due to a lymphangitis originating in the gall-bladder.

It would seem to us that the logical sequence of replacement of the normal pancreatic tissue by fibrous tissue would be a disturbance of the entire function of the gland, including that of internal secretion. We believe that the evidence of a derangement in external pancreatic secretion as found by Jones and his co-workers supports this view. The biometrical study made by Rabinowitch seems to lend strength to this supposition.

Our series of cases, although too small from which to draw any definite conclusions, show a high incidence of associated disease of the pancreas and biliary tract.

The entire disappearance of the evidences of diabetes in our case, immediately following relief of the gall-bladder infection, in conjunction with similar cases reported in the literature, is to our minds quite significant.

CONCLUSIONS

1. From the literature and our small series of cases, there seems to be a definite causal relationship between diseases of the biliary tract and diabetes mellitus.

2. Removal of a focus of infection in the biliary tract will at least temporarily relieve certain cases of diabetes.

3. We, with others, feel that this is another indication for early operation in gall-bladder disease in non-diabetics.

4. Diabetes associated with gall-bladder disease should be considered an added indication for operation, but only when the patient has been properly prepared.

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VASCULAR SYNDROMES IN THE EXTREMITIES.*

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I desire to present a general survey of the circulatory disturbances most commonly found in the extremities. Since the work of Buerger and Leriche, a renewal of interest in these clinical entities has come forth.

While the theories regarding the etiology and pathology of these syndromes are controversial, sufficient clinical data is now available to warrant the construction of separate and distinct entities.

For purposes of description based to a large degree upon the pathological lesions, these disturbances are classified as (1) vaso-motor, or non-obliterative, and (2) organic, or obliterative. Of the vaso-motor group are Raynaud's disease, erythromelalgia, scleroderma; angioneurotic edema and certain types of symmetrical gangrene.

Etiologically, those types classified as vaso-motor are closely related and clinically possibly dependent upon a neurogenic basis. Most writers are in agreement that these angioneuroses occur in subjects constitutionally inferior, with unstable nervous system and neuropathic deviates. A few authorities are on record as ascribing a congenital hypoplasia of the cardio-vascular system as an etiological factor. Many of the vaso-motor neuroses are attributed to a vaso-constriction as a result of a reflex stimulation of the sympathetic fibres, imbedded in the adventitia of the arteries. Leriche is also of the opinion that these

filamentous fibres follow along the main trunks of the vessel. This view is not shared by Todd and others who still stick to the earlier anatomical conception that the sympathetic nerve supply of the vessels is segmental. Experimental investigations and clinical results so far obtained by Leriche and others as a result of periarterial sympathectomy, lead to the conclusion that the nerve elements surrounding the nerve walls are in part regulatory mechanisms.

Typical of the vaso-motor disturbance in the extremities is Raynaud's disease. This condition was described by Raynaud in 1862, as a bilateral asphyxia of the fingers or toes, intermittent in character and symmetrical in distribution. At times the disease process may advance to the stage of symmetrical gangrene. Roentoengologists have shown that when the disease has existed for a considerable period of time, osseous changes, destructive in their nature, are demonstrable and are considered of diagnostic value. Of great clinical importance is the relation of gastric pains in Raynaud's disease. Raynaud in his early studies called attention to these gastralgias and their occurrence simultaneously with the changes in the extremities. Vomiting and diarrhea were also noted by him in the acute attacks.

G. A. Friedman reports a case of "local asphyxia of the extremities (Raynaud's disease) with the hitherto undescribed complication of intermittent achylia gastrica. Abercrombie narrates the history of a boy, aged three years, who, before the onset of the asphyxia was very yellow and who, when his hands were cold, cried on account of the pain in his stomach. When his hands became warm again, the pain in the belly disappeared. Paroxysmal hemoglobinuria was also noted in this case. One of Fox's cases suffered from nausea in the morning and often vomited after eating. A second patient of his, with gastrointestinal disturbance complicating Raynaud's disease, vomited frequently after eating and had frequent attacks of diarrhea. It is possible that the diarrhea was due to the achylia, a common cause of this condition. The attacks might indicate a spasm of the arterioles in the gastric glands."

The etiology of this condition is obscure, but the disease is manifested frequently in neuropaths and often following psychic trauma. Repeated microscopic examinations of vascular segments have not revealed any organic pathol-

*Read before the District of Columbia Medical Society, April, 1925.

ogy. It is universally held that the symptoms are the result of a vasoconstrictive condition.

In 1878 Weir Mitchell described a condition of the extremities characterized by an intense redness, paroxysmal, aggravated by pendent position, absence of intermittent claudication, pain brought on by posture and swelling of the extremity, temporary and induced by mechanical factors. Etiologically, this condition is dependent upon a vasodilatation in contrast to the vasoconstriction phenomena of Raynaud's disease. The studies of Raynaud are to the effect that the dilatation in this disease results from sympathetic paralysis. Clinically, the symptoms are often restricted to the radicular distribution of one or more nerves without, however, the presence of the common symptoms associated with interstitial neuritis.

Schultes described certain sensory phenomena and designated the clinical entity as acroparesthesia. Associated with these sensory anomalies were vaso-motor phenomena such as coldness and pallor of the skin.

Closely related to the above conditions is a trophoneurosis designated as scleroderma, the characteristic symptoms of which are localized edema, sensory disturbances, joint lesions, induration of the skin, pigmentation and vaso-motor disturbances.

As a result of vascular shocks, several French investigators have referred to the post-traumatic condition in the limbs, characterized by colorless, lifeless and at times gangrenous extremities, under the caption of "Stupeur des Arteries."

In contrast to the vaso-motor or trophoneuroses, functional in their nature, your attention will be directed to several organic diseases of the vascular system in contrast to those of a neurogenic nature. While such an arbitrary distinction between the neurogenic and organopathic is made for purposes of presentation in these vascular syndromes, clinically, such a strict delineation is not applicable. In recent years, Weiss, Van Winiwarter and Buerger have erected clinical entities in which symptoms simulating those of the vaso-motor trophoneuroses were present, but dependent upon complete occlusion of the arteries or veins. This condition carries the nomenclature of thrombo-angitis or thrombo-phlebitis obliterans.

The active causative agent of this condition cannot be definitely stated. Some workers believe that as a result of the ionic imbalance, a

deposit, resulting in localized pathology, takes place. Other workers entertain the theory that by dynamics, stasis of the blood current acts as an exciting agent for the subsequent thrombotic process. Infectious phlebitis, closely associated with typhoid fever and other infectious diseases, resulting in thrombotic foci, have led certain workers to conclude that an early localized infective phlebitis or arthritis is essential to the basic pathology for thrombo-angitis obliterans. Sufficient clinical data is now at hand, based upon statistics of 500 cases, that this disease may be said to be exceedingly prevalent among the males and more especially Hebrew race.

The symptomatology is characterized by an obliteration of the pulsation distal to the thrombotic area. Pain intensified in the pendent or elevated posture is in contra-distinction to that observed in erythromelalgia. The absence of pulsation can be said to be pathognomonic of thrombo-angitis obliterans, thereby being of extreme differential value in differentiating this condition from vaso-motor disturbances characterized by Raynaud's disease.

Redness is a constant symptom and is intensified by the placing of the limb in a dependent position. This chromatic reaction disappears on digital compression or elevation yielding to ischemia. Symptoms of intermittent claudication are usually present and at times associated with a chronic persistent puffiness. As a result of the occlusion of the circulation to the extremity, trophic disturbances are frequently manifested, such as ulcers and gangrene.

Pathological examinations reveal an acute, inflammatory lesion, upon which there are deposited miliary giant cells and a secondary stage of organization and healing. Secondary to this organization and canalization, a disappearance of inflammatory signs takes place. As a result of this fibrosis, connective tissue is thrown out, resulting in a combining of the vascular elements.

In contrast to the above organic vascular disease is that of arteriosclerosis of the extremities, resulting in gangrene. While the onset of thrombo-angitis-obliterans is sudden, symptomatology in the vascular sclerosis is gradual and dependent upon systemic pathology. It may be said that with few exceptions (presenile arteriosclerosis), this condition is rarely found prior to the fifth decade of life. Examination will reveal systemic manifestations of a prolonged hypertension. Asso-

ciated with this condition are symptoms indicative of cardio-renal disease. The localizing symptoms indicate a gradual obliteration of pulsation, trophic disturbances, and inability of the circulation to compensate for excessive demands. Interference with the circulation being gradual and progressive, gangrene is a natural sequelae. Of diagnostic aid is roentgenographic examination revealing in the final stages organic deposits within the vessel walls. Microscopic examination of the vessel reveals a roughening of the intima with infiltration of the connecting tissue with small round cells and a proliferation of the elastic intima.

TREATMENT.

Treatment must of necessity be directed along lines that will tend to remove or alleviate the etiological conditions, whether of the neurogenic or organopathic types. As Raynaud's disease is held to be a vasoconstrictive disease, measures should be instituted to cause a vasodilatation.

The nitrate and benzyl benzoate constitute our main therapeutic armamentarium. Leriche's periarterial sympathectomy, a procedure consisting in decortication, thereby removing the filamentous sympathetic elements, causing a dilatation and the establishment of a compensatory circulation to the extremities, offers good results. The relation between the gastralgiias and Raynaud's disease is of diagnostic value and more especially so when considered in the light of surgical reports for the relief of pain by vascular decortication.

Ladd and Gannon, in 1920, reported a case of exploratory operation for gastralgia, which they subsequently showed to be the result of beginning vascular pathology of the aorta, relieved by operative procedure. The causalgiias, which were formerly held to be the result of irritative nerve lesions, were shown in many cases to be relieved by a stripping of the sympathetic filaments from the larger vessels in the traumatized area. Painful stumps with their alleged neuromatous formations have been relieved by Leriche's operation.

Endocrinology has offered but little explanation as to the etiology of the vasomotor trophoneurosis. The administration of polyglandular extract is stated to be of therapeutic value. It is conceded by the author that where there is a lowered vascular tone adrenal preparations to combat the general vascular asthenia are of value. As a general therapeutic measure,

the underlying neuropathic condition should receive consideration. Physiotherapy as an adjunct is of value for the relief of local symptoms.

Treatment of the organic or demonstrable lesions, as a result of thrombo-angitis obliterans and arteriosclerotic processes of the vessels, involves methods to establish a compensatory circulation. In complete occlusion of the vessel, the primary indication is placing the extremity at rest, instituting methods tending to cause a local hyperemia. Of primary importance is position and thermotherapy, tending to increase the vascular components. Diathermy has been shown to be of extreme value in inducing hyperemia. In case to be cited, relief was afforded by this procedure only. If the supposition that the lesions are dependent upon altered viscosity of the blood, as shown by the Hess viscosimeter, is true, the treatment as outlined by Koga, consisting of flushing the intestinal tract with salt solution and Ringer's solution through a Rehfuess tube and also sodium iodide intravenously, are of value.

The author now desires to cite a case typical of the functional or vasoneuroses and one typical of the organic disease.

Vasoconstrictive; H. R., white, male, age forty-five. Referred by Dr. Wm. E. C. in the spring of 1919. He was under treatment for gastric disease, and had had an operation two years previously for duodenal ulcer.

Locally he complained of indefinite pains in the calves of the legs after walking a few blocks. This pain ceased when patient came to a halt. Examination showed Achilles and patellar reflexes normal. Skin dry and pulsation in the dorsalis pedis and popliteal arteries present. Various orthopedic measures were tried for the relief of the leg pains without much effect. During the following winter, while exposed to severe cold on a hike, the second toe on the left foot became white and painful. This was followed by gangrene of the tip of the toe with final demarcation and loss of part affected, also cessation of the pain. With the exception of the indefinite leg pains nothing unusual occurred until the summer of 1921, when the little toe of the same foot became gangrenous. About one-third of the toe finally sloughed off. This attack was accompanied by the most excruciating pain requiring morphine. The pain was most marked when the foot was elevated. Some relief was obtained by constantly flexing the toes. At this

time the pulsation in the distal arteries was absent. The following drugs were administered without any marked effect: amyl nitrite, pilocarpin, sodium iodide and the extract of thyroid gland. A psychoanalysis by Dr. Wm. A. White failed to reveal a complex or any psychoneurotic element. The patient asserted that there must be a nervous element as at times he could run up stairs without discomfort and again there would be pain in the calves. Sugar was absent from the urine during the entire period. Three Wassermann tests were negative. The last attack occurred in the winter of 1922-23. The big toe nail-bed was the site. A crater formed under the nail. The condition became prolonged and the pain was very severe. The pulsation in the dorsalis pedis and posterior tibial arteries was still absent. Patient decided to submit to a Leriche operation and in the spring of 1923 the femoral artery was denuded of its sheath. The day following the operation the secretion in the nail bed ceased and in a few days the crater healed. On palpation two days after operation, pulsation could be detected in the dorsalis pedis and posterior tibial arteries, and they have remained pulsating ever since. Patient made an uneventful recovery but in 1924 patient was operated on again, this time for gastric ulcer. It is of interest to note the relation between the gastralgia in this case and the various circulatory phenomena. This close relation between the gastralgias and vascular lesions was commented upon by Ladd in 1920.

CASE OF ORGANIC LESION.

M. B., age thirty-two, male, Polish Jew. After having exposed both feet to cold, he suffered from cramps in both legs which disappeared in a day or two. A year later there was a recurrence of the pain. These indefinite pains existed for several years, until, in 1924, the typical symptoms of intermittent claudication came on, leading him to try various methods of treatment, but without avail. Finally, about five years after the onset of the disease, prodromal symptoms of gangrene or trophic disturbances developed in the big toe of the right foot, the toe becoming swollen and red. The trophic disorders showed themselves under the nail bed.

Pulsation was absent in the dorsalis pedis and posterior tibial arteries. A decortication of the femoral artery was done without relief. Three months later patient was subjected to

diathermy, and in five weeks the lesions had disappeared. The pain ceased also.

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CLINICAL PSEUDO BULBAR PARALYSIS DUE TO INTRACRANIAL HEMOR- RHAGE OF THE NEW BORN.

By COURTNEY EDMOND, M. D., F. A. C. S.,
Clifton Forge, Va.

In presenting to the Society this paper I trust an apology may not be necessary should the subject prove predominantly neurological. Oto-Laryngology, Ophthalmology and Neurology are, indeed, closely allied. At any rate, my justification might easily be because the patient was brought to me for a diagnosis.

It is agreed that medical case histories are of great importance. Certainly this is true of the following, which case must be reported from its beginning in utero, although at the present time our patient is ten years of age. The mother, a woman of large skeletal frame then twenty years of age, remained in good health throughout the pregnancy, suffering no falls or other trauma. There was one miscarriage before and one after the birth of our patient which occurred eighteen months subsequent to marriage. Another child was born eight years later which is now an attractive and healthful girl of four.

Fetal movements were felt at about four and a half months and it is thought continued in a normal manner to term. A corset was loosely worn the first seven months and then an abdominal support. The mother, therefore, in obstetrical parlance, became a primipara with the birth of our patient. The parturition was of the dystocia type, long and difficult, but without instrumental aid. Labor continued for seven hours, the physician making repeated demands upon the mother to finish the act. When the patient was born the mother was so exhausted that she became unconscious for about an hour. Pituitrin was used. The head was born last accompanied by severe compression and con-

gestion, producing the well-known "blue-baby;" weight seven pounds; development good. It is stated that birth traumatism, causing a large occipital hematoma, so greatly separated the bones of the skull that remoulding of the head was necessary.

A feeble cry was heard two hours after birth, and movements of the legs are recalled a few days later. During the first four days the infant refused to nurse and convulsions occurred at frequent intervals. The head, and particularly the left eye, turned to the left in a violent manner, and the left arm and left leg would simultaneously draw up into rigid and cramped positions. The patient was plainly in a critical state and no encouragement as to life was given or expected. At this juncture, convinced of an intracranial clot, the attending physician almost cruelly announced that should the patient live it would become "an idiot." This expression, even today, harrows the mother's feelings.

However, when the patient was five days old it began to nurse and the convulsions ceased. At four and a half months she sat-up and at sixteen months could stand unaided. The deciduous teeth appeared at six and a half months.

During the succeeding twelve months improvement in the physical condition was surprisingly constant. But it was noticed that the head would still occasionally fall to the left and that the left arm and leg would contract in the manner described. The patient was now weaned and put on Horlick's malted milk. When about sixteen months old whooping-cough developed and gradually reduced the patient to skin-and-bones—so thin, the mother states, that the intestines could be seen through the impoverished abdominal wall. But at twenty-two months the patient was again so much improved that she seemed about normal, except for the following: Walking had not begun and the faculties of speech and deglutition were plainly defective. The mother had used the epithet "lazy baby." Walking began about the twenty-third month. Up to this time there had been slight effort to talk although the words "papa" and "mama" could be vaguely understood. The patient developed the habit of pointing at things with a kind of grunt.

When three years old mild weakness of the legs attracted attention because of needless falling and skinning of the knees. The legs

would give away in a gradual manner. The left leg was observed to be smaller than the right, which discrepancy continued for months insidiously disappearing. A slight drooping of the left eyelid could be noticed when the patient became fatigued. There have never been epileptiform seizures, and no convulsions since the fourth day. Faint-spells have been complained of recently which the mother attributes to approaching puberty.

Status Praesens: Patient somewhat undernourished female, ten years of age; weight seventy-eight pounds; height five feet one inch; blonde type, the blue eyes being alert and expressive. No mental enfeeblement. The countenance is intelligent, the upper half of the face being better in appearance and development; nostrils a trifle dilated; upper teeth and lip distinctly protruding. The lower jaw and lip appear a trifle underdeveloped, the lip resting just posterior to the upper incisor teeth; the mouth is kept partly open, being large and noticeably wetted with saliva, demanding frequent use of handkerchief during examination. When widely opened it is quite round. The speech is grossly abnormal, being a jumble of words and sounds of nasal quality produced as if directly from the larynx unmodified by tongue or lips. The breath is wasted when attempting to speak clearly. The larynx is normal. With deliberate effort the patient can fairly well pronounce the vowels, but the consonants are imperfectly produced, particularly the so-called explosives "p" or "b"—possibly due to some patency of the nares.

Single words are much better repeated after the physician than groups of words, and a few words better than longer sentences. If left to the habitual manner of speaking, words and sentences, begun with hesitancy, are so curiously enunciated as to be unintelligible. Her parents at times have difficulty in understanding the patient's deformed conversation, particularly if the child is excited. Her manner of laughing is so sudden and grotesque as to frighten those unfamiliar with her habits. The patient is well graded at school and reads aloud from book in a surprisingly fluent style considering her severe handicaps. The tongue is of normal appearance; no wrinkling or visible atrophy; its base firmly resists tongue-depressor (which excludes paralysis of the stylohyoid and posterior belly of the digastric muscles supplied by the lower facial

nerve). The tongue can be protruded straight forward and to either side but cannot touch the roof of mouth or upper incisor teeth when mouth is open (indicating paralysis of the *lingualis superior*).

Patient cannot whistle (suggesting involvement of fibers from the hypoglossal to the facial which supply the *orbicularis oris*). Upon questioning she proudly states that her little four-year-old sister can whistle, which statement I have verified. (At this point it is interesting to diverge and quote Gowers as follows: "The *orbicularis oris* and the transverse muscles of the front of the tongue have a functional association closer, perhaps, than any other two muscles in the body equally distinct. Neither can be put in action without the other").

The lower-jaw movements are defective forward and lateralward, or for the grinding motion. The cutting edges of the upper and lower incisors cannot be approximated on account of weakness of the pterygoids, although a wooden blade can be firmly clenched between the molar teeth. The lips show no atrophy. The palate sags and when touched with applicator feels stiff and heavy, movements being sluggish and incomplete and the reflexes very difficult to obtain. Sensation is not abolished. The masseter reflex is exaggerated. There is conspicuous difficulty with mastication and the fingers can be observed to repeatedly assist in placing food between the teeth. Occasional strangulation occurs with regurgitation of liquids into the nose, but the mother lays no stress on this symptom. The legs are well proportioned and equal in size. Pulse 74; respiration normal; ears and nose negative; taste and smell unimpaired; eye-grounds normal, likewise motility and muscle-balance; pupils equal, reacting to light and convergence; no ptosis; no Rombergism, or special gait, as crossing of the legs when walking; no spasticity; no talipes, the feet being well placed on the floor; patellar reflexes equal and a trifle exaggerated; the plantar reflexes are weak and difficult to obtain, the soles not being ticklish; Westphal's paradoxical foot phenomenon is present. No ankle clonus. The following reflexes are absent: Babinski, Oppenheim, Chaddock and Gordon. The finger-to-nose-test shows incoordination, greater on the right; the heel-to-knee test is well performed; no *adiadokokinesis*, no *astereognosis*; the fingers are used normally; no choreiform or athetoid

movements. The Wassermann and spinal fluid tests are omitted.

It may be commented that this case is distinguished from genuine bulbar paralysis by its important history; the absence of conspicuous degenerative atrophy in the weakened muscles; the course of the pseudo-disease, which is not progressively worse; the preservation of reflexes and the unaffected respiration and circulation. In the several text-books at my command, including *Diseases of Children*, I can find no reference to a similar case extending from birth to puberty. It is true that Gowers under the heading "Birth-palsy" mentions bulbar symptoms in association with others, but he proclaims no such syndrome. Perhaps the case here reported might with propriety be placed in this category.

In contemplation of the symptoms here recorded I am aware that the various types of "Little's disease," with bulbar symptoms, come to mind, but, upon reflection, the resemblance is slight. "Little's disease," according to Little himself, is essentially infantile spastic paralysis clearly dating from birth, and *not* the various similar affections originating during infancy and later showing spasticity and plegia. In the case here mentioned there was no paralysis or spasticity of the upper or lower extremities at birth, or developing latter. There was no premature birth, or abnormally small infant at birth. The sitting-and-standing postures were assumed about the usual age, although the walking faculty was a little delayed. No suggestion of the cross-legged or "scissors-gait," has been observed, the symptom so characteristic of "Little's disease." Dr. Joseph Wall states that in "Little's disease" those reaching adult life are never without the tell-tale evidences of spastic paralyses.

I have on occasions carefully observed this child when roller-skating or romping with playmates, and it may be stated that there is nothing to attract the physician's attention until the patient attempts to talk, when his keen professional interest is at once aroused.

Here, then, interesting to the laryngologist, is the word-picture of a girl ten years of age with intellect unimpaired, having full use of arms and legs, hands and feet, who to all outward appearances moves and has her being as other children, and yet is sadly bereft of the power of articulate speech—the one trait which so conspicuously removes the human from the lower order of beings!

A MORE SATISFACTORY TREATMENT FOR NARCOTIC DRUG HABITUATION.*

By W. C. ASHWORTH, M. D., Greensboro, N. C.

The subject of my paper, A More Satisfactory Treatment for Narcotic Drug Habituation, has been chosen on account of the fact that the treatment of the average patient suffering from narcotic drug disease is a very difficult, if not an impossible, undertaking.

I have, for nearly twenty years, been endeavoring to formulate a plan of treatment for narcotic drug disease that would be satisfactory to myself as well as to the patient. I have endeavored to ascertain, as nearly as possible, a fundamental cause responsible for the formation and continuation of the habit of my narcotic drug patients.

I am fully cognizant of the fact that a number of drug patients acquire the habit solely on account of dissipation, or, in other words, they desired the euphoria and pleasurable stimulation resulting from the use of narcotic drugs. I am also mindful of the fact that the members of our profession are also responsible for a number of narcotic drug patients. It is a lamentable fact that we are sometimes entirely too quick to administer a narcotic drug in lieu of other remedial measures which might require a little more time, but, nevertheless, be satisfactory to the patient as well as to the attending physician. We are all familiar with the ubiquitous neurotic who exaggerates his or her pains and is constantly therefore "camping on the trail" of a physician to prescribe some drug that will be a panacea for pain. I take into consideration the fact that the average physician is so busy endeavoring to solve the "bread and butter" question that he frequently has neither the time nor disposition to diagnose infirmities from which the neurotic suffers morning, noon and night. We are also mindful of the fact that narcotic drugs are prescribed for the relief of pain which has its origin in some diseased organ, or, in other words, narcotic drugs are legitimately prescribed for patients who are suffering from organic diseases. The above class of cases deserve our commiseration, and we have many times wished that the morphine could be obtained for this class of cases without the restrictions connected with the ramifications of the Harrison Narcotic Law, which,

at the present time, prevents us in many instances from prescribing for this class of patients.

Now as to the treatment of narcotic drug habituations, we all acknowledge that we are confronted with the most perplexing problem in the domain of our professional work. It is difficult, in the first place, to obtain full co-operation of the patient and prevail upon him or her to be subservient and remain under our immediate surveillance a sufficient length of time for the completion of the cure. Of course, the etiology of the habit must be given due consideration, and also the patient's mind must be disabused of any doubts as to the efficiency of our treatment. The importance of careful study of the personal equation, the temperament and the idiosyncrasies of the patient cannot be over-estimated. The average drug patient does not necessarily belong to the unwashed element of society, but in many instances he or she represents the better class of society. Of course, we recognize the fact that a number of these patients are neurotics from the beginning, and that the transition from a neurasthenic condition to morphinism is a very easy procedure. We will be unfair to our drug patients if we do not fully investigate their ancestry and determine for ourselves whether or not they are suffering from hereditary defects, or an unstable nervous system, which tends to invite rather than repel a habit.

When I am confronted with a drug patient and am undertaking to formulate a plan of treatment, I can scarcely refrain from thinking of the following verses:

"It has always been thus,
From childhood's hour,
I have seen my fondest hopes decay;
For I have never loved
A tree or flower,
But what it was first to fade away."

I have seen so many of my pet remedies and treatments signally fail in the treatment of narcotic drug addiction cases that I am very reluctant, or rather afraid, to call the attention of the profession to new remedies or an improved treatment for drug addiction cases. I am sure, however, that the profession will be tolerant with me, since most of us have had sufficient experience with this class of cases to be fully convinced of our limitations. Of course, it is necessary to differentiate the pains or discomfort of malingering drug patients

*Read by title at the meeting of the Tri-State Medical Association of the Carolinas and Virginia, Richmond, Va., February 18-19, 1925.

from real pain and discomfort which naturally follows in the wake of the withdrawal of the drug. We must also recognize the fact that the narcotic drug user is a diseased individual and that certain pathognomonic symptoms are associated with the habit. I often state to my patients, in order to emphasize the above statement, that if Jess Willard should take morphine for six months he would be a neurasthenic and have all the classical symptoms which belong to the average morphine patient.

We cannot be just or do our best for this class of cases unless we constantly bear in mind the fact that they are suffering from a diseased mechanism and, therefore, deserve the same consideration and curative treatment as if they were suffering from any of the more common diseases.

The treatment for narcotic drug habituation which I am using at the present time, with comparatively satisfactory results, is the administration of allonal in sufficient dosage to produce a state of twilight-sleep. Of course, the dosage must be varied according to the susceptibility of the patient to the drug. I find that comparatively few untoward symptoms develop as an aftermath of the rational administration of allonal. I naturally presume that the members of the Society are familiar with the drug, but I doubt if any has been used generally in the treatment of narcotic drug habituation. I observe that the drug tends to obtund the sensibilities of the patient and produce an oblivion, which, of course, is absolutely necessary if the drug patient escapes the much dreaded withdrawal symptoms. The allonal treatment seldom disturbs the muscular co-ordination of the patient and the sleep obtained is usually refreshing and free from the nightmares that usually accompany the administration of most hypnotics in the treatment of narcotic drug diseases. The impression which is often associated with medicines of this class (barbital) is scarcely noticeable. Of course, it is of the utmost importance for the patient to be under the immediate observation of the physician who can readily regulate the dosage in conformity with the symptoms manifested from time to time.

Of course, allonal is not a specific for narcotic drug disease, but I believe, from an experience of its use in the treatment of nearly fifty cases, that it is probably the most de-

pendable drug we have at the present time for the relief of the nondescript symptoms which accompany the withdrawal of narcotic drugs. The allonal treatment, as compared with the hyoscine method of treatment, is certainly much to be preferred, since the drug is comparatively harmless and seldom productive of cardiac weakness, and the arrest of the secretions, which is exceedingly disagreeable to the patient. I have observed that the percentage of relapses of patients who have been treated with hyoscine is usually large, on account of the fact that the nervous system of the patient reacts very slowly, and as a consequence he or she usually relapses from sheer weakness, if from no other cause. If the dosage of allonal is properly balanced I believe that it is possible to cure the average drug patient with only a negligible amount of discomfort.

Of course, the allonal treatment is not applicable in the treatment of patients who are using an inordinate amount of morphine. In this class of cases I usually reduce the dosage of the drug to one or two grains daily by the modified Lambert treatment and then administer the allonal treatment. I find that the Lambert treatment is usually satisfactory, provided it is sufficiently modified to enable the patient to reduce his dosage of drug without too much shock to the nervous system. The withdrawal of the last residue of morphine is usually the supreme test of a treatment.

I hope to be able to report a number of cases at the meeting of the Society next year. In the meantime, it is my purpose to investigate from every angle the allonal treatment, with the hope that I may be able to note better results.

MALIGNANCY OF THE LUNG FROM THE CLINICAL STANDPOINT.*

By C. LYDON HARRELL, M. D., Norfolk, Va.

I use the term, malignancy of the lung, in its broadest sense, including carcinoma, sarcoma and Hodgkin's disease, affecting lung, pleura and glands.

Primary carcinoma of the lung is very rare, forming about 1.5 per cent of all cancers according to Stevens. Carmon states that up to May, 1917, only 428 authentic cases of cancer of the lung had been reported, but lung metastasis is quite common. Of the cases reporting at

*Read before Seaboard Medical Society, at Rocky Mount, N. C., December, 1924.

the tuberculosis clinic where I work with Dr. Grandy and others, covering a period of five years, there were 3,011 cases examined; only two cases were diagnosed as having malignancy of the lung, one, a white woman, age fifty-five, with primary cancer of the breast metastasizing to the lung; the other, a colored woman, age sixty-eight, probable primary cancer in lung, reported in my series. Of the 1,750 cases reporting at my office for a chest examination (139 of these were children under twelve years of age), six were diagnosed as having a malignant condition of the lung. Two were probably primary carcinoma, two secondary, and two cases of Hodgkin's disease with pulmonary manifestation.

Very little is known of the etiology of primary cancer of the lung, except that those who work in cobalt mines are subject to it. According to Osler, primary cancer is usually confined to one lung, while secondary cancer is most common following cancer of the breast, and is usually bilateral, involving lung, pleura and glands. Hodgkin's disease always affects the glands of the mediastinum, usually bilateral, but more marked on one side than the other.

The most common symptoms of malignancy of the lung are pain in the chest, cough, dyspnoea, general weakness, loss of weight and hemoptysis. The cough is probably one of the first symptoms, paroxysmal in nature, and at times very distressing, growing continually worse as the growth increases in size. The cough is produced in a great measure, I believe, by the pressure of the tumor and glands on the bronchi and trachea.

Pain in the chest, which is usually confined to one side, though it may be felt beneath the sternum and radiate to the shoulder, is probably the next earliest symptom. Like the cough, it, too, is paroxysmal and at times very severe. In some instances it is pleuritic in origin, but more often is caused by pressure of the new growth on the nerve supply. The pain also increases in severity as the disease progresses and as the tumor increases in size.

Dyspnoea at times is a most distressing symptom, caused in all probability by pressure of the new growth on the bronchi and trachea. This is not one of the earliest symptoms, but when it does appear there is very little relief.

Loss of weight and general weakness is common in all, I mean both in primary and secondary cancer and Hodgkin's disease. Hemopty-

sis is quite frequent, occurring in four of my cases. This may be from congestion of the tissue surrounding the tumor or from erosion of small blood vessels.

Looking at these cases, one will observe a sallow complexion, with a downcast and despondent expression. They seem to realize that there is something radically wrong, though they have not been told. They have very slight or no elevation of temperature, slight elevation of pulse. I refer to the cases in the early stage before the mass or glands have increased much in size. The earliest physical sign of pulmonary metastasis is, according to Craver, "a peculiar limitation of breath sounds, especially marked during inspiration, covering a limited area of the chest. This may or may not be accompanied by fine crackling rales during inspiration." He also states that these findings may be observed in many instances before the X-ray findings. A little later on, as the tumor increases in size, you get dullness or a flat note to percussion over the growth, which is usually at the lower portion of one lung in back or between the vertebrae and scapula. If there is no fluid, the breath sounds are either distant or may be tubular in type, accompanied by coarse whistling rales. However, the physical signs in the case of a new growth in the lung are not very characteristic in the early stage. We have to rely chiefly on the history and X-ray findings. If there is fluid, aspirate; if bloody, malignancy may be strongly suspected. The X-ray usually casts a shadow that is quite characteristic in either condition.

Malignancy of the lung must be diagnosed from pulmonary tuberculosis, syphilis of the lung, pleurisy with effusion, abscess of the lung, and a few other less frequent diseases. In tuberculosis the pain and dyspnoea are absent, the cough is milder and of a hacking type. The lesion in tuberculosis is most frequent at the apex; the dullness is only slight and the rales are fine and moist. That of malignancy is usually at or near the base in the back. The signs, if present, are those of a complete consolidation. The rales are usually coarse and whistling (obstructive type). Several negative sputums, with a characteristic X-ray picture, usually clear the diagnosis. From syphilis of the lung, a careful history, negative sputum, and a positive Wassermann, with an X-ray picture should be sufficient. From pleurisy

with effusion, a bloody fluid, without the history of injury to the chest, usually means malignancy. In abscess of the lung, a characteristic profuse expectoration with a fetid odor is present, and X-ray picture further aids in the differentiation.

Hodgkin's disease is very difficult at times to differentiate from tuberculosis, especially in its early stage, that is, before the mediastinal glands are involved. Of course, you have your blood picture, which is considered by some to be fairly characteristic (not accepted by all). The only positive diagnosis can be made by the removal of a gland. Probably Hodgkin's disease should not be considered in this paper, as it has not been regularly classed as a malignant condition. The two cases I am reporting were of a malignant nature, and the symptoms were very similar to those of cancer of the lung.

As to the best method of treatment I know very little. The records do not show a single case of cancer of the lung or a case of Hodgkin's disease which has been cured. In cancer, palliative measures are all we can expect at the most. According to the best authorities, this is best supplied by deep X-ray therapy and massive doses of radium, either directly on the chest or through the bronchoscope. As to Hodgkin's disease, all the writers, that I consulted, and they were many, claim that irradiation gives the best result, the sooner you begin treatment the better. Arsenic, in the form of cacodylate of soda, and iron by mouth, nourishing food and rest, I believe to be very essential.

Following is the record of the cases that came under my observation:

Case 1. White female, age sixty-seven. Consulted me in July, 1918, complaining of cough, pain in left chest and hemoptysis. She gave a history of having her left breast removed by Dr. Payne two years previously for cancer. A radical operation was done with complete recovery from all external appearances. She has dullness and many rales over lower left back. The sputum was negative for TB. Diagnosed as metastatic cancer of the lung. This was confirmed by X-ray a few weeks later. The patient grew steadily and continuously worse, and died November 16, 1918. A few weeks before she died she developed fluid in the abdominal and pleural cavities, which had to be aspirated several times to relieve shortness of breath. This fluid was clear.

Case 2. White female, age thirty-one, mar-

ried, two children. Was first seen in April, 1920. Had a small lump on left breast about the size of a hickory nut. She was two months pregnant at the time. I referred her to a surgeon. He advised her to watch the breast and if the lump continued to grow or to cause any symptoms whatever, to return at once. She did not return until August. At this time she was complaining of pain in the right breast and chest, with cough. The right chest was very dull throughout, with a few marginal rales. A diagnosis of cancer of the breast metastasizing to the lung was made, confirmed by X-ray. Surgery was considered out of the question, so she was referred for X-ray therapy. Her chief symptoms were pain in the chest, which was quite severe, cough, shortness of breath and loss of weight. In a few weeks fluid collected in the right chest; this was aspirated in an endeavor to relieve the dyspnoea. The fluid was orange colored, tinged with blood. She aborted in November and improved for a short while following delivery. She soon began to fail again, growing continually worse until she died in June, 1921, about fourteen months from the time she was first seen.

Case 3. Colored female, age sixty-eight. Reported at the TB Clinic July 13, 1923. Complained of cough, pain in left chest, shortness of breath, extreme weakness, loss of weight and hemoptysis. She gave a history of having had grippe in the early winter and had been confined to the house since. Examination revealed a very thin, emaciated woman. Pulse 108, temperature 98.9. The lower 2/3 of left chest was flat to percussion throughout. Tactile and vocal fremitus were diminished over the same area. There were a few fine rales heard at left apex. The right lung was hyper-resonant, no rales, and the heart was pushed over to the right. I made a diagnosis of pleurisy with effusion, and ordered the patient to the hospital for aspiration. On July 17, 1923, I removed 800 c.c. of bloody fluid from the left chest. My diagnosis was changed to malignancy of the lung. She was again aspirated on August 15, removing 800 c.c. of bloody fluid. Patient grew continually worse and died October 12, 1923, three months from the time I first saw her, about a year from the time of her illness. I regret that no autopsy or X-ray pictures could be obtained, but in all probability this was a primary cancer of the lung.

Case 4. White male, age sixty-five. First consulted me December 16, 1922, complaining of pain in lower right chest and small part of back, worse from 5 P. M. to 12 midnight.

There was cough with slight expectoration, no blood. His past history was of no consequence, except he had contracted a cold about two months previously and has had cough with pain in right chest since.

There was no history of loss of weight. (I have recently learned that patient was injured in breast in an automobile accident about two years before his last illness). Examination revealed a large well-nourished man, weight 180 pounds, pulse 88, temperature 98, blood pressure 122/80. His teeth and gums were badly diseased. The heart was not enlarged, sounds were distant, no murmurs, regular, but slightly increased in rate. The chest was well-developed, and resonant throughout, except for a slight area of dullness from angle of right scapula to base, and under axilla. There were a few stick rales heard over this area and extending as far forward as anterior axillary line. The liver was not palpated. Urine showed a slight trace of albumin, no casts. My impression was that he had an adhesive pleurisy, probably secondary to the grippe or mouth infection.

On February 7, 1923, two months after he consulted me, patient consulted Dr. Rinker. At this time he gave a history of losing a great deal of weight. Cough and pain in right chest was growing continually worse; he had been spitting up some blood for past ten days. His sputum was negative to TB. Blood Wassermann negative. There was an area of dullness found about midway the back on the right side about the size of the palm of the hand, with a few coarse rales scattered over the back. The X-ray showed a very dense mass in the mediastinum with studded areas of density in both lungs, more on the right. A diagnosis of malignancy of the mediastinum, metastasizing to both lungs, was made.

The patient took X-ray treatment in Norfolk and Baltimore, but grew continually worse. I saw him again in June. He was suffering severe pain in right chest and dyspnoea. Was taking morphia constantly. The lower two-thirds of right lung was dull to percussion. He died August, 1923, about ten months from the time he was first taken.

Case 5. White male, age thirty-eight, busi-

ness man. First consulted me in May, 1917, complaining of enlarged glands in neck and groin. His past history was of no consequence, except that he noticed the gland in his groin about a year ago, and the axillary and cervical glands became enlarged about six months ago. Family history negative.

Examination revealed a slender, fairly well-nourished man, weight 150 pounds. Temperature and pulse normal. The blood pressure was 110/70. Tonsils removed at fourteen years of age. Teeth in good shape. Heart and lungs negative. The glands in the groin were about the size of an egg, firm and not tender. The cervical and axillary glands were about the size of a small marble. The abdominal glands were not palpable, but became so a little later. The testicle on the right side was absent (probably undescended). Urine negative. Blood Wassermann negative. Blood: HGB 80 per cent; RBC 4,800,000; WBC 14,000. Polys. 54; small lym. 36; large lym. 7; eos. 3. After a short study I made a diagnosis of Hodgkin's disease. One of the cervical glands were removed and referred to Dr. Newcomb for examination. He reported it positive for Hodgkin's disease. The patient was then referred to Dr. Hunter for X-ray therapy. He was also given cacodylate of soda and iron by mouth for two months twice a year. He was allowed to continue at work, but advised to take things easy. He took X-ray treatments for about two months in each six months; the reactions were quite severe.

About the first of June, 1921, four years after I first saw him, he was taken quite sick, having contracted a bad cold that seemed to knock him out. He had not taken any X-ray treatments for nearly a year, his excuse being that the reactions made him so sick that he would scarcely get over the effects of one before it was time to take another. The glands that gave him the most trouble in the beginning were the deep abdominal glands; consequently, most of the raying was over the abdomen.

About the middle of June he came to the office complaining of weakness, shortness of breath, cough and pains in left chest. (Patient had put on a great deal of weight). The heart sounds were distant, with a pre-systolic murmur heard at left cartilage. The lower two-thirds of left chest was flat to percussion. I inserted a needle and drew off twenty ounces of cloudy, blood stained fluid. This was cul-

tured and found negative. A stained smear was negative to TB, but showed a few pus cells and many lymphocytes. He was put to bed. Blood count made June 21, 1921, showed WBC 5,950; polys. 61; small lym. 32; RBC 4,100,000, HGB 63. He was quite sick. I took him to Baltimore to consult Dr. Burnam. After going into the case, he advised the use of radium, but refused to treat him until the acuteness had subsided. The X-ray showed that the bronchial and mediastinal glands were enlarged; apparently the superficial glands were not causing trouble. He had to be aspirated two or three times to relieve dyspnoea, and the last time I removed forty-eight ounces of fluid. He took his first radium treatment July 1, 1921. After this he showed rapid improvement. He returned to light work in September, but continued to consult Dr. Burnam every three weeks for a year.

In April, 1922, he had another little flare-up, with cough, dyspnoea, and pain in chest. A small amount of fluid collected, but did not require aspiration, disappearing of its own accord. The patient was examined in Baltimore, July 3, 1922, and reported as doing well, no evidence of disease being detected. WBC 7,600; RBC 4,728,000; HGB 94 per cent. The following year he took no treatment but general care, and continued at work. On July 4, 1923, he did a hard day's work in an ice-house. This seemed to start things up again. I saw him a few days later, when he appeared to be quite sick, and had a return of all previous symptoms. He had a general glandular enlargement of both superficial and deep glands; the spleen was also enlarged. As soon as he was able to travel, he returned to Baltimore, but was refused treatment. He grew continuously worse and died two months later, about six and a half years after I first saw him, a little over seven years from the time he first noticed glandular enlargement. He responded well to X-ray treatment for nearly four years, stopped treatment for a year, then relapsed. Again he responded well to radium treatment for two years, stopped treatment for a year, then relapsed.

His blood picture is of some interest. The leucocyte count, with the exception of the first count of 14,000, ran from 5 to 6 thousand. Polys. 60 to 70 per cent; small lym. 25 to 32 per cent; large lym. 2 to 7 per cent. The platelets ran high, from 70,000 to 532,000. The

lowest was found two weeks after he had taken a heavy dose of radium.

Case 6. White female, age thirty-three, married sixteen months, no children. First consulted me March, 1922, complaining of cough, expectoration, pain in upper left chest and shoulder, general weakness, and a rapid loss of weight. Sputum was streaked a few days previously and patient had a lump in the left neck. Her father died of tuberculosis one month prior to this. Mother living and in good health. Her past history was of no consequence. She had been working in a store as a saleslady up until the time she was taken sick, December, 1921, with what she called a cold; had general malaise, pain in back and left shoulder. She had a very sallow complexion, an expression that spelled anxiety and suffering. The finger nails were markedly "clubbed." Temperature 98.3, pulse 104, weight 143 pounds. Her regular weight was 169. The cervical and axillary glands were slightly enlarged, with one bunch in the left neck about the size of a lemon. The heart was negative: upper left chest was dull to percussion, with resonance impaired to base in back. Breath sounds indistinct, with a few scattering rales at margin of lung and at base. The right lung was hyper-resonant. Sputum negative for TB. Blood Wassermann negative. RBC 4,200,000; WBC 17,500; polys. 76; small lym. 19; large lym. 3; eos. 2.

X-ray picture showed a dense mass about the size of an orange in the upper left chest, apparently attached to mediastinal structures; other glands of chest were slightly enlarged. Removal of a gland from the neck for examination was requested, but refused. A diagnosis of acute Hodgkin's disease was made, and referred for X-ray therapy. She responded to X-ray treatment only slightly, although the pains were slightly relieved. Her blood picture remained about the same. WBC 18 to 20 thousand; polys. 66 to 78 per cent; small lym. 17 to 20 per cent; large lym. 3 to 11 per cent. The blood platelets were not found increased at any time.

At the end of six months of X-ray treatment, her superficial glands were slightly smaller, but the mass in the chest was larger. Symptoms were worse, that is, cough, pain, shortness of breath, expectoration and inability to retain food. Her weight had gone from 140 to 107 pounds.

In December, 1922, she was referred to Dr. Burnam for radium treatment, at which time the diagnosis of acute Hodgkin's was confirmed. The first radium treatment produced a severe reaction, and a drop in WBC to 9,450, but this soon rose again. By April, four months under radium therapy, patient had put on ten pounds in weight and was much improved in every way. Late in the summer she began to fail again and gradually went downhill, going from bad to worse until she died in January, 1924. This patient ran a high leucocyte count all the way through from 17,000 to 22,000. Her small lym. were low, 16 to 20 per cent. Blood platelets were not increased at any time.

Analyzing these cases, two were secondary cancer of the lung, two were probably primary of the lung, two were Hodgkin's disease, with pulmonary manifestation. Only one of the four cases of cancer was under sixty years of age. The two cases of Hodgkin's disease were between thirty-three and thirty-eight years of age. All of the cases gave a history of cough, pain in the chest, shortness of breath, general weakness and a rapid loss of weight when the pulmonary symptoms began. Four of them spat blood sometime during their illness, early in three cases. Four of them had fluid in the chest which required aspiration; three had bloody fluid. In the secondary cancer cases there were pronounced physical signs on both sides. In the primary cases and the cases of Hodgkin's disease, the pronounced signs were confined to one side. Of the two cases of Hodgkin's disease, one was acute and the other chronic. The chronic case did well under irradiation and general treatment and lived over seven years. The acute case ran a short course, a little over two years, according to her history. I judged by the clubbed nails when I first saw her that she had had the disease for some time. Irradiation did her but little good, except for short periods of temporary relief.

I ask for a closer study of these cases, endeavoring to make a correct diagnosis as early as possible. In cancer, for the prognosis, there is but little we can offer as yet. Surgery may have something in store. In Hodgkin's disease, with an early diagnosis, and with proper care and treatment, I believe their usefulness and longevity may be greatly increased.

I wish to thank Miss Jessie Franklin, of

the Tuberculosis Clinic, and Mrs. W. A. King, of my office, for compiling these statistics.

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Medical Arts Building.

ASPIRATION OF STEARATE OF ZINC POWDER IN INFANCY.*

By COURSEN BAXTER CONKLIN, B. S., M. D.,
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In view of the fact that this form of accident occurring mostly among children is unfortunately relatively common, cases as they occur should be placed in medical literature so that intelligent action may be taken to reduce their frequency. A recent report by a Committee on Accidents from Zinc Stearate appointed by the Board of Trustees, American Medical Association, as printed in the *Journal A. M. A.* March 7, 1925, showed 131 cases of poisoning with 21 per cent of fatalities. A group study was made by Heiman and Aschner in which the clinical manifestations occurring in twelve cases were summarized. From their observations the onset in every case is stormy with rapid respiration and some cyanosis. Asphyxia may occur. One patient died within twenty-four hours with signs of a fulminating pneumonia. The chest upon examination revealed diffuse crepitant rales. There was often physical evidence of an extensive bronchopneumonia. The usual history obtained is that a child is given a box of stearate of zinc to play with. The free flowing powder spilled on the face is followed by inhalation.

Meltzer and Kline gave a summary of their work in animal experimentation. The powder was passed into the trachea of an anesthetized dog by means of a sterile rubber tube with a Devilbiss bulb. The dogs generally seemed ill for a day or two. There was loss

*Read before George Washington University Medical Society.

of appetite and temperature of 101° to 105° , some developing a brassy cough. Three dogs were killed three days after insufflation; two dogs after five days; one dog after ten days. The lesions resembled a bronchopneumonia with what might be termed an interstitial pneumonitis. An interesting discovery was that the lesions resulting from insufflation of talcum powder were found to be the same only of lesser degree.

REPORT OF CASE

Baby R., aged fifteen months, at 5 P. M. obtained stearate of zinc powder which was loose in a pasteboard box. The uncle of the child who is employed in a drug store had brought the powder home in bulk. When seen by the parent vast clouds of the powder were coming from the mouth with each expiration. The child was immediately taken to a hospital where its mother said a stomach tube was used and she was then advised to take the child home, with a statement that "it would be all right." When I was called the child was breathing rapidly with the typical expiratory grunt which accompanies pneumonia. There was marked dyspnoea. Despite remedial measures death occurred at midnight.

Since the type of container that is usually in use did not figure in this case it would seem that the organized effort toward the prevention of these accidents should be directed not only toward the modification of the present typical containers but also should be directed against careless handling of the loose substance.

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- 500 *Medical Science Building.*

A SIMPLE METHOD FOR ELEVATING THE DEPRESSED ANTERIOR METATARSAL ARCH.

By BERNARD H. KYLE, B. S., M. D., F. A. C. S.,
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Numerous patients have consulted me with reference to pain and discomfort about the ball of the foot. Examination of these cases have shown that they were suffering either from metatarsalgia, Morton's neuralgia, callosous warts or discomfort in this region of the foot. Most of these patients were wearing an

improper type of shoe or, if the proper type, the shoe did not fit the foot, while in a few cases no fault could be found with the shoe. For sometime an impression of the foot was made on cardboard indicating just where the lift should be, and from this an oval lift was made on an inner sole. It was found necessary to change this lift frequently as to height and location, obtaining results in but a few cases. It was also noted that such appliances placed inside of the shoe to elevate this arch threw the dorsum of foot against the shoe causing pressure in this region. Finding this unsatisfactory a metal bar was used, one-eighth of an inch thick and one-half of an inch wide, which was soon found not to give enough lift. It was difficult to hold the bar in place and it usually ruined the shoe. When Jones and Lovett's Text-Book on Orthopedic Surgery came from the press, a shoe with a metal bar screwed to the sole was observed on page 666, figure 665. It was very evident that if this bar was of the proper thickness it should give the proper lift, but here the difficulty arose of having such a bar at hand to fit all sizes of shoes and give all variations of elevation.

The idea was then conceived that it would be a very simple matter to make this lift of leather and fasten the same to the sole of the shoe. The next patient who came into the office requiring a lift stood in the proper type and properly fitted shoe. A pencil mark was made to locate the head of the first metatarsal bone on the inside of the shoe and the head of the fifth metatarsal on the outside of the shoe. The shoe was then removed and these two points connected by a straight line on



Sole of the shoe showing shoe wedge.

the sole of the shoe. This line of course indicated the anterior metatarsal joint line of the foot. A line was then drawn posterior an inch and a half and parallel to the first line. The shoe was sent to the shoe repair

shop where the lift, as shown in the photograph, was made in a very short time. After the lift has been properly designed it is merely a triangular wedge which prolongs the sole backwards and shortens the shank. When the shoe is placed on a perfectly smooth surface the only part which comes in contact with the surface is the heel and apex of the lift, the sole clearing the surface at the toe about one-half of an inch. It is very important that the heel be perfectly level allowing the apex of the lift to touch along its entire border, thereby preventing any rocking or unevenness in walking. The amount of the lift depends largely on the comfort of the patient and not infrequently it is necessary to increase or lower the lift just a trifle.



Lateral view showing shoe wedge.

When the patient stood in the shoe the metatarsal arch was elevated, allowing the toes to drop. After wearing the shoe for two days the patient returned relieved of all discomfort. Such a lift has been used on about thirty cases with good results in all cases. The lift may be used for the following conditions:

First, Metatarsalgia.

Second, Callous under anterior arch.

Third, Fracture of the toe.

Fourth, Paralytic feet with depression of the anterior arch and dorsally flexed toes (selected cases).

Fifth, Following operations for hallux valgus. For the latter condition I have had this bar placed on the shoe prior to operation and have been able to get these post-operative cases up and allowed them to walk with comfort at the expiration of the third week.

Medical Building.

BILATERAL TUBAL PREGNANCY.

Report of a Case

By W. R. BRACEY, M. D., Richmond, Va.

Very few cases of bilateral tubal pregnancy are reported. Jordan and Bigger (*VIRGINIA MEDICAL MONTHLY*, May, 1925), in reporting a case, state that only about twenty-seven cases other than their own are on record. Dr. Thomas H. Russell, of New York, tells me he has had one case.

My case was twenty-eight years of age, one child five years old. Onset was six weeks before admission to hospital, with sharp pains in lower right quadrant lasting for four hours. These attacks were first one week apart, later becoming more often and variable in duration. Patient is nauseated and feels weak after the pain begins. She had a bloody vaginal discharge for the entire six weeks, more profuse at some times than at others. She did not complain of any pain in the left side (left lower quadrant).

There was no history of having missed a menstrual period. The right tube had ruptured. It was about the size of a duck egg, containing a well organized blood clot. There was a large amount of blood with clots in the peritoneal cavity. No embryo was found in the clot in the tube nor were chorionic villi. I think they probably suffered resorption. The left tube was size of an egg, the blood clot very firm and organized. This was not ruptured. The clot was removed and was conical in shape. The embryo and chorionic villi were absent in this also, presumably having undergone resorption under pressure of the clot and age of the organization.

The right tube being about twice the size of the left would suggest that there may have been some difference in the ages of the two pregnancies. The ovaries were not examined for corpora lutea; therefore, I have no information as to whether the two eggs came from one or both ovaries.

I presume the gestations must have been of about ten weeks' duration, as the symptoms had been present for six weeks before operation. It seems to me that the right side was the older in that it was ruptured and twice the size of the left.

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REPORT OF A CASE OF FUSO-SPIRILLARY INFECTION WHICH DEVELOPED DURING ACTIVE ARSPHENAMINE TREATMENT.

By JOHN A. HILLSMAN, M. D.,
and
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One of us reported the treatment of Vincent's angina and trench mouth with the intravenous injection of tartar emetic,¹ at which time there seemed to be a very definite idea that salvarsan was a specific. At variance with that view, we wish to report a case that seems not to bear out such theory. In confirming our observations, Sutton reports the development of Vincent's angina during active "606" treatment. Our case history follows:

Mrs. H., white, female, age twenty-eight, was admitted to City Jail Hospital at Richmond, Va., for treatment as a morphine addict. Examination at the time was negative except for carious teeth and a positive Wassermann. Patient was given sudden withdrawal treatment, and in a few days put on old arspenamine. Three decigrams intravenously were given on each of the following dates, January 17, 24, 31.

On February 1, patient reported to interne, complaining of intense ear-ache, sore throat and mouth. Examination at this time revealed an intensely swollen face on the right side, swelling extending well down into the neck; whole side of face was exquisitely tender, ear drums were normal, breath extremely foul, mucous membrane of mouth was reddened, gums were spongy and inflamed, with recession from the teeth, and bleeding spontaneously. Pain on opening mouth was intense, and no examination of throat was possible. Temperature at this time was 103 F., pulse 130, respiration 18. Cultures for diphtheria were negative, but smears showed upon three consecutive examinations the bacillus fusiformis, and spiro-nema Vincentii.

Recognizing the significance of the development of this disease during salvarsan treatment, further investigation was made by carefully cleansing of the mouth and applying locally neo-salvarsan. On the day following, the temperature, pulse, and respiration remained the same, face and neck were still markedly swollen and tender, ear-ache still persisted, and the mouth was in much worse condition, with dark necrotic areas appearing.

Teeth were loose and painful, with a very foul breath. Application of neo-salvarsan was made. That afternoon the patient had a hemorrhage from the mouth, and lost about two ounces of blood. Fearing to try salvarsan any longer, the patient was given 5 c.c. of 1 per cent tartar emetic intravenously. No reaction was noted. On the following morning, the temperature was 101 F., pulse 95, respiration 18. All ear-ache had disappeared, face and neck markedly reduced, and tenderness had disappeared from the swollen area. Examination showed a mouth well on the road to recovery. The breath was not so foul, mucous membranes not so inflamed, gums not so boggy, and no bleeding. Teeth were much firmer in their sockets. Throat was examined for the first time; tonsils and fauces were seen to be inflamed. Cultures from the tonsils showed abundance of streptococci, but no Vincent's organisms.

On February 3, patient was given intravenously 6 c.c. of 1 per cent tartar emetic solution. The next morning again showed marked improvement in both the subjective and objective symptoms. On February 4, tartar emetic was given in dose increased to 7 c.c. 1 per cent solution. No reaction was noted and the patient steadily improved.

On February 5, tartar emetic was given, the dose now being 8 c.c. of the 1 per cent solution. Smear taken this day was negative for Vincent's angina. On February 6, 10 c.c. of the 1 per cent solution was given, following which the patient became nauseated but did not vomit, and was faint. One c.c. of adrenalin (1:1000) appeared to relieve the symptoms immediately, but patient refused to take any more injections. For four days there was nothing done for the mouth and examination at that time revealed a normal mouth as far as Vincent's angina was concerned, and all smears were negative.

SUMMARY

Patient developing Vincent's angina on day following third injection of salvarsan in as many weeks does not speak well for intravenous salvarsan as a cure for the disease. Local cleansing, followed by application of neo-salvarsan, did not bring any change for the better in this case, and, further, brings suspicion on salvarsan as a cure for Vincent's angina, either locally or intravenously. Rapid improvement of this case coincident with the in-

travenous use of tartar emetic seems to point to the efficacy of this treatment.

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Medical Arts Building.

NON-INFECTIOUS LEUCOCYTOSIS, ITS SIGNIFICANCE AND TREATMENT.*

By G. G. HOWERY, M. D., Christiansburg, Va.

In presenting this most important subject, I shall endeavor to do so from the standpoint of the general practitioner rather than that of the laboratory technician or internal medicine man.

In the November, 1924, issue of the *Medical Clinics of North America*, Dr. O. H. Perry Pepper, of the University of Pennsylvania, presented a most excellent paper on Non-Infectious Leucocytosis, and to him I am indebted for the most important data I have been able to collect on this subject.

Until recently it had been my idea that leucocytosis was only to be associated with infectious processes, and not until it was brought very forcibly to my attention in non-infectious cases did I come to realize that it was possible to have a non-infectious leucocytosis, or one of traumatic origin. I hope later on in my paper to cite a few cases which will illustrate my point.

Doubtless we will agree that the chief function of the leucocyte is that of protection, but just in what manner this protection takes place has not been definitely explained. We know that certain infectious processes, especially those due to pyogenic organisms, will cause a definite increase in the white cell count, provided, however, the hosts shows sufficient resistive power, and we usually explain it on a chemical basis, *i. e.*, during the process of digestion by the organism, a specific enzyme is elaborated by which the white cells are drawn, especially the neutrophils, but when we find a marked leucocytosis where there is no infection it is hard to explain on such a basis. What little we do know of the leucocytic function suggests that it is protective against pathologic dangers.

The so-called normal leucocyte count of 7,500 is not absolutely constant, and is subject in a normal individual to many slight varia-

tions in the twenty-four hours, these being known as physiologic variations.

Physiologic leucocytosis occurs in the newborn, latter weeks of pregnancy, during labor, during digestion, after cold baths, etc. It is true that this is not very marked, rarely exceeding 13,000, and much help may be gained by a differential count.

In the new-born infant the count may be over 20,000, which by the end of the first week has settled to between 10,000 and 12,000. During labor the count rises abruptly to 20,000, or even 30,000, dropping to normal within a few days in uncomplicated cases.

Leucocytosis may result from disturbed blood flow or from altered blood volume, and this may in the final analysis be the mechanism by which many of the physiological leucocytoses are produced. The leucocyte count will be increased by slowing of the blood stream whether due to local stasis or to failure of the general circulation. Severe acute circulatory failure, coronary thrombosis, and paroxysmal tachycardia may be accompanied by a leucocytosis.

A great variety of organic substances are known to produce leucocytosis, very slight in most instances, but worthy of note. Included in this list are such substances as the following: Adrenin, nuclein, collargol, turpentine, camphor, antipyrin, phenacetin, digitalis, pyradon, pyrogallol, benzol derivatives, arsphenamin and long continued chloroform narcosis. Leucocytosis may also occur in certain diseased conditions in which there is apparently no infection present as, for example, uremia, also the occurrence of a leucocytosis following an apparently clean operation which might cause unnecessary worry unless its real nature was appreciated.

This slight leucocytosis following an operation might appear quite considerable if there had been a normal count recorded previous to the operation.

Another type of leucocytosis, non-infectious in character, appears after a hemorrhage, especially that following a hemorrhage into the peritoneum, the pleura, the intradural space or a joint cavity; in such cases the count may rise to 20,000 or 30,000. The peak is reached in about ten hours after the hemorrhage and persists four or five days. From a practical point of view the hemorrhage into the peritoneal cavity is probably the most important.

In twenty-eight cases of ruptured ectopic

*Read before the Southwestern Virginia Medical Society, at Pulaski, Va., March 26-27, 1925.

pregnancy reported by Wright and Livingston, the average leucocyte count during the first day was found to be 20,000; and it will take but an instant to appreciate how readily such a count in a case of an acute abdominal condition might lead the physician or surgeon to an erroneous diagnosis, mistaking the real condition for one of an acute intra-abdominal infection. So also is the importance of the leucocytosis which seems to be a constant accompaniment of an intradural hemorrhage. Wright and Livingston go so far as to say that the absence of a leucocytosis in a case with cranial injury excludes the possibility of fracture at the base of the skull.

In the various forms of post-hemorrhagic leucocytosis, it appears that the degree of leucocytic increase is not always proportional to the amount of bleeding. The counts which occur in a moderate amount of intradural hemorrhage are far higher than those occurring in a massive external hemorrhage. In external hemorrhage it would seem that the actual loss of blood must be the determining factor, although an element of absorption from the point of bleeding may be present.

On the other hand, the higher counts from bleeding into a serous space would seem to be due largely, if not wholly, to the absorption of some substance stimulating the formation of leucocytes. Certainly these cases of leucocytosis that occur, for example, in intraperitoneal bleeding, are true leucocytosis in the sense that the young immature cells enter the blood.

While on the subject of non-infectious leucocytosis, it will be well to mention that we find some increase of leucocytes in tubercular meningitis, neoplasms, and in terminal or agonal states; most of these however, are of very moderate degree.

The differential count should not be overlooked, as the importance of leucocytosis cannot be fully estimated without observing the differential count. This is especially true in the differentiation of the infectious from the non-infectious leucocytosis, such as we are now considering. In a clear-cut case of active infection where one count has, for example, been 15,000 cells with 85 per cent of them neutrophils, a later count of 20,000 may need no differential count to reveal its full significance. On the other hand, there are many instances in which a very slight leucocytosis with, however, a markedly increased percentage of neutrophils,

may be far more indicative than a higher total count with a normal or almost normal differential picture.

Physiologic leucocytosis is often not associated with any change in the differential count, while the reverse is the case where infection is the cause of a leucocytosis. It then should be clear that a differential count should be made in every case of leucocytosis even to a slight degree.

With increasing knowledge of the specific function of the various forms of leucocytes, we may better understand the meaning of one of the other forms, and above all it should remain firmly fixed in our minds that it is not always of an infectious origin, as it may occur from a variety of other causes.

Before entering upon discussion of the cases, I want to offer an apology for considering the treatment of these cases in a paper of this nature, but in view of the fact these patients were in extremis and the results were so favorable, I have thought it would be of interest to at least some of you to have a brief review of the treatment, etc.

The following cases were handled surgically by Dr. A. M. Showalter, at the New Altamont Hospital, Christiansburg, Va.:

Case No. 632.—Mrs. A. T., age forty-four, married, housewife. Admitted February 9, 1925; discharged March 4, 1925. Admitted in a severe state of shock, with a blood pressure of 55 S., and 50 D., and with a history of having been suddenly awakened at 3 A. M. on above date with a severe, stabbing pain in left lower abdomen. Rapidly became worse, and was brought to the hospital at 2 P. M., on the same date. A blood analysis at 9:30 A. M. showed 16,800 white cells, 4 per cent small lymphocytes, 1 per cent large lymphocytes, 1 per cent transitional, and 94 per cent polynuclears. At 3 P. M., one hour after admission, white cells were 18,000, small lymphos. 6 per cent, transitional 1 per cent, and polys. 93 per cent. At 4 P. M. patient was given 500 c.c. of undiluted blood, intravenously, and the blood pressure raised to 95 S. At 7:30 P. M., when she was operated on under local anesthesia, the bleeding points were ligated, mass removed, corroborating initial diagnosis of ruptured left ectopic pregnancy. Normal salt solution was given intravenously during the latter part of operation, when a small amount of ether also was used. Immediately following the opera-

tion, 750 c.c. of blood was given by transfusion. Patient rapidly improved following the second transfusion, and made an uneventful recovery. The blood analysis on the 19th of February, ten days later, showed a white cell count of 7,800, with 16 per cent small lymphos., 2 per cent large lymphos., 4 per cent transitional, and 78 per cent polys.

Case No. 504.—Miss I. M., age twenty-three, single. Admitted July 5, 1924, and dismissed July 17, 1924. She was admitted with a diagnosis of ruptured right ectopic pregnancy. Blood pressure 100 S., 60 D., with a history indicating that she was feeling as well as usual until 4 P. M. of July 4, when she was taken with a severe pain in the right lower abdomen, followed by an extreme state of shock, although, as physical examination indicated, she had somewhat reacted at the time of admission into the hospital. A blood test on admission, eighteen hours after initial attack, showed 17,000 white cell count, but no differential count was made in this case. Operation under ether anesthesia at 1:50 P. M. corroborated diagnosis; mass was removed, and all bleeding points ligated. No further examination was made of the blood while patient was in the hospital, though, like the former case, she made a rapid and uneventful recovery.

Case No. 592.—Master C. S., age thirteen, single, school boy. Admitted to the hospital November 25, 1924, and dismissed December 11, 1924. Admitted 7 P. M., November 25, unconscious and paralyzed completely on left side, with a considerable discoloration over both eyes, and a fluctuating mass over right parietal region of scalp. History indicated that at 4 P. M., November 25, 1924, he was found lying unconscious in the road not far from home, apparently having been thrown by a horse he had been riding. Analysis showed the white cell count was 20,000 on admission, 7 per cent small lymphos., 1 per cent large lymphos., and 92 per cent polys. Spinal fluid test showed white cell count of 750, red cell count 12,400, and a positive globulin. A diagnosis of fracture of the right parietal bone was made, with a subdural hemorrhage. Operation under ether anesthesia was made at 9:15 P. M., on the above date, when the clotted blood was removed. Wound was closed with drain beneath the dura and also between the dura and skull. Patient made an uneventful recovery, there being no further blood tests made.

Case No. 633.—Master P. L., age sixteen, single, male. Admitted February 15, 1925, and dismissed March 11, 1925. Patient was admitted to hospital at 3:30 P. M., with a history of being shot at 2 P. M. by another man, incident to a "drinking spree." Records do not show what the blood pressure was at this time, as the patient was in an extreme state of shock, and was vomiting blood at frequent intervals. A blood test made on admission showed white cell count of 19,500, 10 per cent small lymphos., 1 per cent large lymphos., 1 per cent transitional, and 88 per cent polys. Four days later blood test was made, with a white cell count of 6,300, 23 per cent small lymphos., 3 per cent large lymphos., 2 per cent transitional, and 72 per cent polys. Patient was operated on under ether anesthesia at 7:30 P. M., on date of admission, and bleeding points ligated and openings closed, which operation revealed the fact that the bullet had passed through the left lobe of the liver, cutting one of the hepatic veins near the inferior vena cava, then passed through the lobus Spiegelii, cutting a hole in the pyloric end of the stomach, passing between the aorta and inferior vena cava, cutting one of the veins of the right kidney, then passing out. Patient was given salt solution intravenously during operation, and 750 c.c. of blood by direct transfusion method immediately after operation. Patient made an uneventful recovery, except that the abdominal wound healed rather slowly, and was discharged March 11, 1925.

CONCLUSIONS

As far as the above reports show, there was a marked increase in the white cell count immediately following the injury; none of these cases were infected; and in those cases where the blood tests were followed up, a marked reduction occurred in all instances, thus corroborating the idea that a leucocytosis with a high polynuclear count may come from some other cause than infection.

DIET DURING PREGNANCY. ESPECIALLY ITS MODIFICATION IN THE PREVENTION OF TOXEMIA.

By W. I. PRICHARD, A. B., M. D., Petersburg, Va.

That a purely physiological process should so frequently develop serious and distressing pathological phases is one of the unsolved problems in scientific medicine. We conclude that it must be one of the penalties women

pay for having ascended so high in the scale of evolution.

Toxemia is a term which has obtained very general usage, though little is known about the condition it represents. It is generally accepted to mean that the blood contains toxins or poisons, but their nature we do not understand. These toxins are supposed to be the result of deficient or abnormal general metabolism, or morbid processes occurring in special organs, as the liver, the kidneys, the thyroid; again, the poisons are supposed to come from the fetus or the placenta, a deranged chemism occurring here. As a result of the deficient action of some organs of the body, for example, the liver, the kidneys, the thyroid, and, perhaps, some of the ductless glands, these poisons are retained in the body, or they are not sufficiently oxidized or changed as to be rendered harmless and eliminable.

Such is the general theory of etiology. To explain why and how these changes originate there are other theories, but a discussion of these is not within the scope of this paper.

The writer desires to review some general features concerning diet during pregnancy, and diet as related to the toxemias met with in pregnancy, which are wholly caused by the pregnant state; namely, that of the earlier part, or hyperemesis gravidarum, and the latter part, eclampsia—more especially as related to the early pre-eclamptic state.

In prenatal work there is no subject of greater practical importance than the nourishment of the pregnant woman. Yet, apparently, nobody until very recent years has given the subject any definite thought.

There are reasons for believing that the appetite of the ordinary healthy human being is a reasonable guide to the selection of his food. The question naturally arises: "Does pregnancy so alter the conditions of the body that the appetite of the individual is no longer a safe guide?"

In reviewing the literature on this subject one does not find any record of a systematic study by our obstetrical clinics. Until the larger clinics direct their attention to this matter, our ideas on this important subject must be derived, in the greater part, from the physiologists and their animal experimentations. By animal experimentation we are able to study the various phases of metabolism in pregnancy, because of the shorter duration of pregnancy

in animals, and because it is possible to keep an animal on a fixed diet throughout the entire period.

There is a similarity of conditions between the human and the animal during pregnancy; for instance, the dog has the same period of negative metabolism and vomiting is not infrequent. The question is often asked: Do dogs, rabbits, rats, etc. require more food during pregnancy? According to the physiologists, they do not. Gammel,¹ in his extensive experiments in the feeding of animals in the pregnant state, concludes that in the earlier part "catabolism has the upper hand, and it is impossible to overcome this by heavier feeding." In reviewing the experiments of Hagerman, Jageroos, and Bar, Murlin writes: "Upon an adequate diet a dog in pregnancy may retain more than sufficient nitrogen to counterbalance, plus the quota taken up by the uterus and mammary glands."

From these reports of the physiologists it is concluded that under normal conditions, and a normal diet, which has been sufficient for the woman in the non-pregnant state, the fetus will grow, taking its nourishment from the mother's food and only selecting those substances in sufficient quantity for normal growth, and, because of this selective process by the placenta, a specific diet will in no way effect the fetal growth. Professor Bueffner, of Rostock, who has written, perhaps, the most logical paper on diet in pregnancy, draws the same conclusion, that the normal diet is sufficient in quantity.

The idea among the laity that the pregnant woman needs more food than before pregnancy is true only if she is doing her work at the time. This factor, however, like that of climate—warm or cold, habits—athletic or sedative nature, and certain hereditary tendencies, are conditions that deserve special consideration, as they would in the normal state.

Physiologists agree that the important consideration in the diet of the pregnant woman is the quality. It must contain the principal elements of food; namely, albumin, carbohydrates, fats, water, and salts. Of the salts, lime, sodium, phosphorus, and salts of iron are the most important. As to fluids, it is conceded that the quantity should be increased in consideration of the amniotic fluid and the fact that the fetus contains 60 per cent water.

No discussion of diet during pregnancy seems complete without mentioning the Prochownick diet. The writer desires to discuss this briefly, because of its bearing on the eclamptic state. This diet was instituted in 1889, and has been used by many prominent obstetricians. In substance it is a high protein, low carbohydrate and reduced fluid diet used during the last six weeks of pregnancy the object of which is to reduce the fat of the fetus and mother in cases of moderately contracted pelvis and in women giving birth to large infants. It was not claimed by the author that this diet altered the size or character of the bony structure of the fetus, as some have interpreted. Animal experimentation yields no scientific background for this latter interpretation. (I refer to experiments on cattle with lime salts).

Prevalent views as to the value of this diet are contradictory. To quote some:

E. P. Davis: "Diminution in the mother's food is not followed by a corresponding diminution in the size of the foetus, because the foetus is a parasite and persists in thriving at the expense of the mother."

De Lee: "Prochownick hoped to restrain the growth of the child and also retard the ossification of its bones, so that it would mold easier through the pelvis. My few experiences with it have been absolutely negative."

Polak: "Diet has a decided influence on the child. Adherence to the Prochownick diet will result in a small foetus, in which the plasticity of the cranial vault is increasing."

Williams: "In slight degrees of pelvic contraction, or in patients who have given birth to excessively heavy children, a restricted diet may be advisable during the last two or three months of pregnancy."

Edgar: "The large proportion of nitrogenous food and small quantities of fluid of this diet undoubtedly favor toxemia."

In view of the divergence of these opinions and the possibility of this diet favoring toxemia, it would seem more desirable in this type of case to use an obesity or modified obesity diet, as advocated by Day, of Boston; that is, one which is bulky, largely vegetable, and low in caloric value.

Perhaps the most significant indications for a modification of diet during pregnancy are those rendered by an ensuing condition of pernicious vomiting in the first trimester of preg-

nancy, or the pre-eclamptic state in the latter part.

When the ordinary vomiting of pregnancy progresses to such a stage that the well-being of the individual becomes a matter of concern, when there is persistent vomiting and retching, with an appreciable increase in pulse rate and signs of emaciation beginning; attention is directed to the diet. In general, there has been advocated a carbohydrate diet, administered at frequent intervals. Polak's recent expression on this subject reads thus: "Force a carbohydrate diet; encourage them to eat solids with plenty of sugar, eat lots of candy," etc.

This manner of diet was instituted as a result of the work of Duncan and Harding in 1918, Harding in 1921, Titus in 1920, and Lynch in 1919. All conclude that the toxin involved is metabolic in nature and origin and is due to the increased demand for glycogen on the part of the fetus. The maternal organism may be successful in meeting this demand or it may fail more or less. The time of day when the maternal organism may be most reasonably expected to be least able to meet this demand is after a period of starvation, and the longest period is between the evening meal and breakfast of the following morning; this explains why so much of the vomiting of pregnancy manifests itself in the morning hours. The placenta is not physiologically able to store glycogen until the third to fourth month, hence during this period the fetus must depend on the maternal organism for its supply.

Williams, however, in the latest edition of his text-book brings this matter up-to-date, concluding that the cause is a "toxic substance," and whatever may be said of the etiology of hyperemesis is largely hypothetical and may be subject to revision at any time. He advocates a restricted diet.

The remaining condition the writer wishes to consider in which diet is altered is the pre-eclamptic state.

The cause of eclampsia, like that of hyperemesis is still an undetermined question. According to Williams, it occurs in 1 to 130 pregnancies, Crogin, 1 in 79, New York Lying-in Hospital, 1 in 185 cases. It is about twice as often in primipara as multipara, more frequent antepartum than postpartum, and the greatest number occur between the ages 20 and 25. It is the pre-eclamptic state we are here interested in, for at this period it is possible

that eclampsia may be averted. Attention is directed to the diet, for the nitrogen distribution of the urine indicates a disturbed protein metabolism, and the functional capacity of the kidneys is greatly reduced. Hence, in the presence of an ascending blood pressure, beginning headache, disturbance of vision, or albuminuria, or any one of the symptoms or signs, a modified diet is instituted. To quote some of the latest expressions on this subject:

Polak states: "In our pre-eclampsics they are first put at rest on a milk diet, and kept on that until their pressure has come down and their albumin diminished, at which time they are allowed vegetables, except peas and beans, fruits and cereals."

Hirst: "My routine advice to patients is to eat meat once a day and in moderate quantities, then red meat only three times a week, and fish to be substituted for meat once a week at least; nothing nutritious between meals; never more than two eggs a day, and moderate quantities of the stronger proteid vegetables, corn, beans and peas; at least five whole glasses of water a day, one just before going to bed and one on rising in the morning."

Williams: "We place the women upon an exclusive milk diet, but, if they will not stand it, upon a very low protein one."

De Lee: "As to special diet for pre-eclampsics, our views are undergoing changes constantly. We have not been successful with the absolute milk diet, nor with the vegetable and water diet, nor with the absolute non-protein diet, nor with the salt-free diet. At present, we are compromising and give the women a restricted protein diet and salt-poor diet."

CONCLUSIONS

1. That an adequate diet for a woman in the non-pregnant state is adequate during the pregnant state, provided due consideration is given her degree of activity, hereditary tendencies, climate, etc.

2. That the advantages claimed by the use of the Prochownick diet can be secured by other forms of diet less apt to produce toxemia.

3. In conditions of threatened hyperemesis, since the theory of glycogen deficiency ceases to hold its former prestige, a plain easily digestible diet is growing in favor.

4. In the pre-eclamptic state, because of the urinary findings, the disturbed nitrogen distribution, the reduced functional capacity of

the kidneys, and the pathology found in these cases, a restricted protein or milk diet continues to be form of choice.

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 Day—Boston, Mass., Text-book and Letter.
Market Street.

A CASE OF BONE TUMOR.

By J. B. H. WARING, M. D., Blanchester, Ohio.

Mrs. E. B. H., aged forty-five, married, American. Previous medical history negative. Consulted in regard to a symmetrical enlargement of the proximal phalanx of the right index finger, of about three years' duration. Dating from a rather obscure history of having struck this finger on some hard object, the finger had slowly enlarged in this phalanx until the deformity had become quite noticeable. In addition to this, inability to flex the finger to any extent caused her considerable trouble in her household duties. As expressed by the patient, she was "always hitting it on something;" and when out in cold weather she found it increasingly difficult to use an ordinary sized glove on that hand. She was very sensitive about appearance of the finger; and much worried as to possibilities. At times there was a dull pain in the finger, but as a rule merely a slight degree of tenderness on pressure over the swollen area. Careful examination failed to elicit any external evidences of inflammation, the skin being smooth and perfectly normal in appearance, and no periosteal nodulation felt on palpation.

Patient felt that something had to be done about the finger, but was very anxious to save it if possible. She expressed the hope that the bone might be chiseled down to normal size, and the finger preserved in useful condition.

Patient was sent to Dr. A. H. Freiberg, of Cincinnati, orthopedic surgeon, for consultation and opinion. Doctor Freiberg concurred in a diagnosis of bone tumor. The roentgeno-

gram is herewith, cystic in structure, and in all probability a giant-celled intraosseous growth. Enucleation was also advised.



Operation was performed under general anesthetic at request of patient, who was very nervous, and felt she could not stand a local anesthesia amputation. In order to satisfy the patient's wish for preservation of the finger, if there appeared to be any possibility of this, an exploratory incision was made along the shaft of proximal phalanx and carefully dissected. On opening through the periosteum, however, the scalpel broke through into a mass of honeycomb-like bone cells filled with a jellylike material. On further exploration it was found that the entire shaft of this phalanx was of similar structure, the whole being confined up to this time by a slowly thinning periosteum. Amputation was therefore a necessity; not only because there was no healthy bone left in the shaft, but more so because of possible malignancy and metastasis elsewhere. From the condition of shaft, it was apparent that strong digital pressure, or a slight accidental blow would have easily fractured the bone.

Amputation of the finger was effected at the metacarpophalangeal articulation, and as the head of the metacarpal bone appeared perfectly normal, with no evidence of any extension of the process outside of the involved phalanx, the wound sutured without drainage.

Primary union was obtained. Unfortunately the amputated finger was thrown into furnace refuse by a nurse, and pathologic laboratory confirmation of the clinical diagnosis was unobtainable.

109 East Main Street.

Correspondence

Plagiarism.

New York, N. Y.

July 28, 1925.

TO THE EDITOR:

In the January, 1922 issue of your valued MONTHLY, you were good enough to publish a paper which I had read by invitation before the Norfolk County Medical Society, on October 31, 1921, entitled "Urologic Problems of Interest to the General Practitioner."

You may imagine my surprise when I recently read in "*International Clinics*," published February, 1925 by the J. B. Lippincott Company, a paper purporting to have been written by Dr. Thomas M. Dorsey and Dr. Rudolph Monaco, both of Louisville, Ky., this paper being an exact copy of my article which you published except for a few minor changes of a word here and there. Their article is entitled "Some of the Urologic Problems Most Frequently Encountered in Daily Practice."

In order that you and your readers may more readily appreciate the true nature of the plagiarism thus committed, I enclose herewith photostatic copies of the first three pages of my article (from my reprints) and the first three pages of the article in "*International Clinics*" ascribed to Drs. Dorsey and Monaco. If space permitted, it would be interesting to publish both articles complete in parallel columns and the result would be startling indeed, for it would be seen that my original article was taken bodily and reproduced as an original contribution in "*International Clinics*," word for word, line for line, paragraph for paragraph, with but a few minor changes of verbiage, as the accompanying sample pages will readily show.

The alleged authors, Drs. Dorsey and Monaco, make no suggestion or intimation of any kind in their article that the matter is not original with them, but add insult to injury by deliberately deleting my name from the body

Reprinted from the Virginia Medical Monthly, January, 1927.

UROLOGIC PROBLEMS OF INTEREST TO THE GENERAL PRACTITIONER.*

By ABR. I. WOLBARST, M. D., New York, N. Y.
 Assistant and Chief of Urologic Clinic, Beth Israel Hospital,
 Consulting Urologist, Manhattan and Central Islip State Hos-
 pitals, Genito-Urinary Surgeon, West Side Dispensary and
 Hospital, etc.

[A study of all the urologic problems that confront the general medical practitioner would take more time than I am permitted to consume, but a few of the most urgent can be considered rather briefly with profit to our patients and ourselves. These problems owe their being primarily to the fact that the urologic tract is so situated anatomically that the usual methods of physical diagnosis—palpation, auscultation and percussion—are of little or no value in the determination of its pathologic conditions.]

Urologic phenomena, such as hematuria, pyuria and pain in or near the genito-urinary tract, cannot be accounted for by these methods; nevertheless it is not uncommon to meet with cases that have been treated for long periods of time without a definite diagnosis, or in fact, a serious attempt at a definite diagnosis having been made.

Perhaps the most flagrant example of this unfortunate practice is to be seen in those innumerable cases in which a diagnosis of cystitis has been made and bladder irrigations and

*Read by invitation before the Norfolk County Medical Society, Norfolk, Va., October 31, 1921.

urinary antiseptics administered for long periods without relief to the patient. When these patients reach the urologist, as they do eventually, he probably will find the so-called cystitis merely one of the secondary symptoms incidental to the presence of a pathologic lesion of serious character, such as tuberculosis, tumor, stone, or stricture.

The subject of hematuria offers a much more striking example. To the urologist, hematuria is a symptom, not a disease. It means that somewhere in or near the urologic tract an active pathologic process is going on, which is making itself evident by the presence of blood in the urine. It is no exaggeration to say that in probably forty per cent. of cases of hematuria, the bleeding is symptomatic of the presence of a tumor somewhere in the urologic tract. But the average medical practitioner always does not take the trouble to find out what is causing the hematuria or where it is located. He may put the patient to bed and

SOME OF THE UROLOGIC PROBLEMS MOST FREQUENTLY ENCOUNTERED IN DAILY PRACTICE

By THOMAS M. DORSEY, M.D.

AND

RUDOLPH MONACO, M.D.

Of the Dorsey Urological Clinic, and the University of Louisville, Medical Department, Louisville, Kentucky

[A BRIEF account of some of the urologic problems most frequently encountered in daily practice may prove interesting, especially to general practitioners of medicine who are usually first consulted by patients regardless of what may be the nature of their complaints.

It may be stated at the outset that urologic phenomena, such as hematuria, pyuria, pain, etc., in or near the genito-urinary tract, cannot be definitely accounted for by palpation, auscultation and percussion. It is not uncommon to see patients who have been treated for long periods of time without a definite diagnosis, where, in fact, no serious attempt at a positive diagnosis has been made.

Perhaps the most flagrant example of this unfortunate practice is seen in those innumerable cases in which a diagnosis of cystitis has been made, vesical irrigations and urinary antiseptics administered over long periods, without relief to the patients. When these individuals reach the urologist, as they all do eventually, he will probably find the so-called cystitis merely one of the secondary manifestations incidental to the presence of a pathologic lesion of serious character, such as tuberculosis, tumor, calculus, or stricture.

The subject of hematuria offers a much more striking example. To the urologist hematuria is a symptom and not a disease. It means that somewhere in or near the urologic tract there exists an active pathologic process which is making itself evident by the presence of blood in the urine. It is no exaggeration to say that in probably 40 per cent. of cases of hematuria, the bleeding is symptomatic of the presence of a tumor somewhere in the urologic tract; but the average medical practitioner does not always take the trouble to ascertain the cause of the hematuria nor where it is located. He may place the

of their text on page 48, in the paragraph commencing with "The Five Glass Catheter Test." The photostatic copy shows this brazen insult very strikingly.

These alleged authors discussing the subject of pyuria says (page 48), it "will be discussed more fully, starting on page 58." It is most

amazing to refer to page 58 and find an article entitled "Pyuria," by the same Dr. Dorsey and one Dr. Frank C. Bohanan, also of Louisville, Ky., which again is a verbatim copy of another article of mine which appeared in the *Medical Record* (New York) on February 12, 1922, except for a few paragraphs preceding

order an internal antiseptic or styptic, and when the hemorrhage stops, as it usually does under the influence of rest, he is apt to feel satisfied with the success of his treatment. But it is a fact, nevertheless, that he does not know what causes the bleeding, and it may be accepted as axiomatic that if he does not know the cause of the hemorrhage he surely cannot do anything that will help his patient materially.

The hematuria may not return for months,

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or even for years, but in that interval precious time has been lost. The small benign papilloma has grown large and has become malignant; before its potential malignancy became active it could readily have been destroyed, perhaps never to return, by the Beer method of fulguration through the cystoscope; but the passage of time has brought about a change in the character of the growth so that we now are dealing with a carcinoma that may require radical measures with little or no chance of ultimate recovery. The small calculus which could have been removed from the bladder through the cystoscope, has grown to large proportions and requires surgical measures for its removal. The unilateral renal tuberculosis, amenable to surgical measures with a large degree of success, now has become bilateral, with greatly reduced chances of recovery. In other words, what was a comparatively simple matter in the beginning has been permitted to become a serious menace to the life of the patient, because a diagnosis was not made, or even seriously attempted, at the proper time.

These illustrations can be repeated with many variations, but they all point to the single moral—that in the practice of urology, at least, the first and most important problem which confronts the medical practitioner, is the absolute necessity of making a correct diagnosis. At least he should attempt it with such means as his experience and training suggest; if necessary, expert assistance must be secured.

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But the diagnosis must be made, and the sooner it is made, the better for all concerned. We are past that stage in medicine, where a name of a clinical entity satisfies. We must know the cause. No one should be allowed to go on after an attack of hematuria without a definite diagnosis having been made by the medical attendant.

But how shall the medical attendant meet this difficult problem? He surely does not meet it by putting the patient to bed and pre-

SOME UROLOGIC PROBLEMS

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patient in bed and order an internal antiseptic or styptic; and when the hemorrhage ceases, as it usually does under the influence of rest, he is prone to feel satisfied with the success of his treatment. But it is a fact, nevertheless, that he does not know what causes the bleeding, and it may be accepted as axiomatic that if he does not know the cause of the hemorrhage he surely cannot do anything that will help his patient materially.

The hematuria may not return for months, or even years, but in that interval precious time has been lost. The small benign papilloma has increased in size and has become malignant; before its potential malignancy became active it could have readily been destroyed, perhaps never to return, by the Beer method of fulguration through the cystoscope; but the lapse of time has brought about a change in the character of the growth so that we are now dealing with a carcinoma that may require radical surgical measures for its removal with little or no chance of ultimate recovery. The small calculus, which could have been extracted from the vesical cavity through the cystoscope, has attained large proportions and surgical measures are required for its removal. The unilateral renal tuberculosis, amenable to surgical treatment in its early stages with a large degree of success, now has become bilateral, with greatly reduced chances of recovery. In other words, what was a comparatively simple matter in the beginning, has been permitted to become a serious menace to the life of the patient because a diagnosis was not made or even seriously attempted at the proper time.

These illustrations might be repeated with many variations, but they all point to the single moral—that in the practice of urology the first and most important problem which confronts the medical practitioner is the absolute necessity of making a correct, early diagnosis. At least he should attempt it with such means as his experience and training suggest; if necessary, expert assistance must be secured. But the diagnosis must be made, and the sooner the better for all concerned. We are past that stage in medicine where the name of a clinical entity satisfies; we must know the cause. In no case should hematuria, for example, be allowed to persist without a definite diagnosis as to causation being made by the medical attendant.

How shall the medical attendant meet this difficult problem? He surely cannot hope to meet it by placing the patient in bed and pre-

the plagiarized matter, and some additional matter which they added at the end of my article.

While I fully appreciate the splendid compliment conveyed by this wholesale plagiarism of my articles by these gentlemen, all connected with the University of Louisville Medical De-

partment and the Dorsey Urological Clinic of Louisville, I feel that such misappropriation of another's efforts should not be permitted to go unrebuked when discovered. In addition to being inherently unfair and unethical, it tends to lower the standard of medical literature and brings all medical writings under suspicion.

scribing an internal antiseptic. The ideal solution would consist in a reasonable amount of familiarity with the cystoscope and its manipulation. However, if the practitioner is too busy with his multifarious duties involving many specialties to acquire some cystoscopic experience, it is sufficient that he acquaint himself with the possibilities and dangers that confront his patient because of his limitations, and that he then act as his conscience dictates.

If he once understands the great danger in which the absence of a diagnosis places his patient, he will find the means of avoiding it. There are certain measures upon which he can rely, which will aid him in a very fair degree towards establishing a working diagnosis until the exact diagnosis can be made. Among these may be mentioned the kidney function tests, the microscopic examination of the urine, and the so-called urinary tests. Any medical practitioner can do these important tests with-

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out the need of special training or acquired skill.

The Five Glass Catheter Test (Wolbarst), which I have described in previous publications, will be found of special value in these circumstances. It does not take the place of the cystoscope or the ureteral catheter, but it tells us whether the blood has its origin in the urethra or in the upper urinary tract, and this is a big step forward. If by this means the practitioner has determined that the blood is not derived from the urethra, but from the bladder or higher up in the urinary tract, he undoubtedly will take the necessary steps to have his patient radiographed and cystoscoped, and the ureters catheterized, if necessary, thus completing the diagnosis. His problem will be solved in a great measure if he always will remember that hematuria is a symptom, not a clinical entity; that there is no substitute for cystoscopy and ureteral catheterization, and that anything else is mere guesswork and of no substantial value to the patient.

What has been said with reference to hematuria applies with equal and perhaps greater force to the subject of pyuria, except that the problem is somewhat more complex. Pus found in the urine may have its origin in any part of the common urogenital tract, but unlike hematuria, in the male at least, the origin of the pus is in the urethra or the genital adnexa, in the vast majority of cases. In pyuria unaccompanied by definitive symptoms,

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scribing an internal antiseptic. The ideal solution would seem to consist in a reasonable amount of familiarity with the cystoscope and the technic of its manipulation. However, if the practitioner is too busy with his multifarious duties, involving the many specialties, to acquire some cystoscopic experience, it is sufficient that he acquaint himself with the possibilities and dangers that confront his patient because of his limitations, and he may then act as his conscience dictates. When he once understands the great danger in which the absence of a definite diagnosis places his patient, he will find means of avoiding it.

There are certain measures upon which the practitioner may rely and which will aid him in a fair degree toward establishing a working diagnosis until an exact diagnosis can be made. Among these may be mentioned kidney function tests, microscopic examination of the urine, and the so-called urinary tests. Any medical practitioner can make these important tests without the necessity of special training or acquired skill.

The five-glass catheter test will be found of special value under these circumstances. It does not take the place of the cystoscope or ureteral catheter, but it tells one whether blood has its origin in the urethra or in the upper urinary tract, and this is an important step forward. When by this means the practitioner has determined that the blood is not derived from the urethra, but from the bladder or higher in the urinary tract, he will undoubtedly take the necessary steps to have his patient radiographed and cystoscoped and the ureters catheterized if necessary, thus completing the diagnosis. His problem will be solved in great measure if he will always remember that hematuria is a symptom, not a clinical entity; that there is no substitute for cystoscopy and ureteral catheterization; that anything else is mere guesswork and of no substantial value to his patient.

What has been said with reference to hematuria applies with equal and perhaps greater force to pyuria, except that the problem is somewhat more complex, and will be discussed more fully, starting on page 58. If the pus is derived from the bladder or upper urinary tract, the practitioner should at once realize that he is dealing with a condition in which the life of the patient is endangered, one that requires accurate diagnosis and the best surgical care that can be obtained.

My purpose in writing you is to bring this brazen instance of wholesale plagiarism to your attention and to ask your co-operation in giving it publicity in the hope that such publicity will serve as a warning to others who may

feel inclined to resort to similar unethical practices for their own aggrandizement.

ABR. L. WOLBARST.

P. S. The lines enclosed in brackets on the photostatic sample pages, are not plagiarized.

The Truth About Medicine

In addition to the articles enumerated in our letter of May 29, 1925, the following have been accepted:

American Chemical Laboratories:

Rhus Tox. Antigen (Strickler).

Rhus Venenata Antigen (Strickler).

Britt, Loeffler & Weil:

Loeblund's Malt Extract With Calcium.

Loeblund's Malt Extract With Cod Liver Oil.

Lederle Antitoxin Laboratories:

Scarlet Fever Streptococcus Antitoxin (Unconcentrated).

Wm. S. Merrell Co.:

Pituitary Extract (Obstetrical)—Merrell.

Pituitary Extract (Surgical)—Merrell.

H. K. Mulford Co.:

Lamb's Quarters Pollen Extract—Mulford Treatment Sets.

Scarlatinal Antitoxin (Unconcentrated)—Mulford.

Parke, Davis & Co.:

Tuna Fish Protein Diagnostic—P. D. & Co.

Frederick Stearns & Co.:

Insulin—Stearns, 80 Units, 5 c.c.

Insulin—Stearns, 80 Units, 10 c.c.

Winthrop Chemical Co.:

Solarson.

NEW AND NON-OFFICIAL REMEDIES

Poison Ivy Extract—Lederle (In Almond Oil).—A solution in almond oil of a substance extracted from the fresh leaves of poison ivy (*Rhus toxicodendron*). The preparation is used to desensitize persons against poisoning with *Rhus toxicodendron* and to relieve the symptoms of the dermatitis produced by contact with the plant. It is injected intramuscularly. The preparation is supplied in syringes containing 1 c.c. Lederle Antitoxin Laboratories, New York.

Pollen Extracts—Mulford. The following pollen extracts—Mulford (New and Non-official Remedies, 1925, p. 285), are marketed in 5 c.c. vials containing 250 units per c.c.: Ash Tree Pollen Extract—Mulford; Bermuda Grass Pollen Extract—Mulford; Box Elder Pollen Extract—Mulford; Canary Grass Pollen Extract—Mulford; Cocklebur Pollen Extract—Mulford; Corn Pollen Extract—Mulford; Cottonwood Tree Pollen Extract—Mulford; Daisy Pollen Extract—Mulford; Dandelion Pollen Extract—Mulford; Dock Pollen Extract—Mulford; False Ragweed Pollen Extract—Mulford; Goldenrod Pollen Extract—Mulford; Johnson Grass Pollen Extract—Mulford; June Grass Pollen Extract—Mulford; Maple Pollen Extract—Mulford; Marsh Elder Pollen Extract—Mulford; Mountain Cedar Pollen Extract—Mulford; Mugwort Pollen Extract—Mulford; Oak Tree Pollen Extract—Mulford; Orchard Grass Pollen Extract—Mulford; Perennial Rye Grass Pollen Extract—Mulford; Plantain Pollen Extract—Mulford; Redroot Pigweed Pollen Extract—Mulford; Redtop Pollen Extract—Mulford; Russian Thistle Pollen Extract—Mulford; Rye Pollen Extract—Mulford; Sagebrush Pollen Extract—Mulford; Sugar Beet Pollen Extract—Mulford; Sunflower Pollen Extract—Mulford; Sweet Vernal Grass Pollen Extract—Mulford; Sweet Vernal Grass Pollen Extract—Mulford; Walnut Tree Pollen Extract—Mulford; Western Ragweed Pollen Extract—Mulford.

The following pollen extracts—Mulford, are marketed in 5 c.c. vials containing 250 units per c.c.

and in treatment sets consisting of Series A: Doses 1 to 5, Series B: Doses 6 to 10; Series C: Doses 11 to 15, and Complete Series: Doses 1 to 15 inclusive; Lamb's Quarters Pollen Extract—Mulford and Wormwood Pollen Extract—Mulford. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., June 6, 1925, p. 1734).

Pollens Dried—Mulford. The dried pollen of various species of plants. Pollens dried—Mulford, are intended for diagnosis only (Allergic Protein Preparations, New and Non-official Remedies, 1925, p. 278). A small amount of the dried pollen is rubbed into an abrasion of the skin to which has been applied a drop of physiological solution of sodium chloride or of tenth-normal sodium hydroxide solution. An urticarial wheal appearing within a half hour from the time of application indicates a sensitivity to the particular pollen used. Pollens—dried—Mulford, are marketed in packages of one capillary tube containing a sterile needle and sufficient pollen for one test; in packages of six capillary tubes and in vials containing 0.05 Gm. of pollen.

The following have been accepted: Ash Tree Pollen Dried—Mulford; Bermuda Grass Pollen Dried—Mulford; Box Elder Pollen Dried—Mulford; Canary Grass Pollen Dried—Mulford; Careless Weed Pollen Dried—Mulford; Cocklebur Pollen Dried—Mulford; Corn Pollen Dried—Mulford; Cottonwood Pollen Dried—Mulford; Daisy Pollen Dried—Mulford; Dandelion Pollen Dried—Mulford; Dock Pollen Dried—Mulford; False Ragweed Pollen Dried—Mulford; Goldenrod Pollen Dried—Mulford; High Ragweed Pollen Dried—Mulford; Johnson Grass Pollen Dried—Mulford; June Grass Pollen Dried—Mulford; Lamb's Quarters Pollen Dried—Mulford; Low Ragweed Pollen Dried—Mulford; Maple Pollen Dried—Mulford; Marsh Elder Pollen Dried—Mulford; Mountain Cedar Pollen Dried—Mulford; Mugwort Pollen Dried—Mulford; Oak Tree Pollen Dried—Mulford; Orchard Grass Pollen Dried—Mulford; Perennial Rye Grass Pollen Dried—Mulford; Plantain Pollen Dried—Mulford; Redroot Pigweed Pollen Dried—Mulford; Redtop Pollen Dried—Mulford; Russian Thistle Pollen Dried—Mulford; Rye Pollen Dried—Mulford; Sagebrush Pollen Dried—Mulford; Shadscale Pollen Dried—Mulford; Sheep Sorrel Pollen Dried—Mulford; Slender Ragweed Pollen Dried—Mulford; Sugar Beet Pollen Dried—Mulford; Sunflower Pollen Dried—Mulford; Sweet Vernal Grass Pollen Dried—Mulford; Timothy Pollen Dried—Mulford; Velvet Grass Pollen Dried—Mulford; Walnut Tree Pollen Dried—Mulford; Western Ragweed Pollen Dried—Mulford; Wormwood Pollen Dried—Mulford. H. K. Mulford Co., Philadelphia.

Typhoid Vaccine—P. D. & Co. (New and Non-official Remedies, 1925, p. 363). This is also marketed in packages of thirty ampules, ten containing 500 million and twenty containing 1,000 million killed typhoid bacilli each. Parke, Davis & Co., Detroit.

Typhoid Paratyphoid Vaccine—P. D. & Co. (New and Non-official Remedies, 1925, p. 363). This is also marketed in packages of thirty ampules, ten containing 500 million killed typhoid bacilli, 375 million killed paratyphoid A and 375 million killed paratyphoid B bacilli, and twenty containing 1,000 million killed typhoid bacilli, 750 million killed paratyphoid A and 750 million killed paratyphoid B bacilli. Parke, Davis & Co., Detroit. (Jour. A. M. A., June 13, 1925, p. 1825).

Stovarsol.—Acetylaminohydroxyphenylarsonic Acid.—Stovarsol contains from 27.1 to 27.4 per cent.

of arsenic. Stovarsol has been reported to produce favorable effects in the treatment of amebic dysentery. It is claimed to yield satisfactory results both in the eradication of dysenteriae cysts and encysted flagellates and for general amebic dysentery. Stovarsol is not proposed for the treatment of syphilis and its use in amebic infections is still in the experimental stage. Stovarsol is supplied in tablets containing 0.25 Gm. Powers-Weigtmann-Rosengarten Co., Philadelphia.

Insulin—Mulford. A brand of insulin (New and Non-official Remedies, 1925, p. 171). Insulin—Mulford is supplied in the following forms: Insulin—Mulford 10 units, 5 c.c.; Insulin—Mulford, 20 units, 5 c.c.; Insulin—Mulford, 40 units, 5 c.c. H. K. Mulford Co., Philadelphia (Jour. A. M. A., June 20, 1925, p. 1917).

Rhus Tox. Antigen (Strickler).—A solution of a substance extracted from the fresh leaves of *Rhus toxicodendron*. *Rhus Tox. Antigen (Strickler)* is used to determine sensitiveness to *Rhus toxicodendron*, to desensitize persons against poisoning with *Rhus toxicodendron*, and to relieve the symptoms of the dermatitis produced through contact with the plant. *Rhus Tox Antigen (Strickler)* is supplied in packages of four 1 c.c. vials for use in prophylaxis and treatment and as *Rhus Tox. Dermal Test* in packages of a 1 c.c. vial (accompanied by a vial of *Rhus Venenata Dermal Test*), for use in determining sensitiveness. American Chemical Laboratories, Philadelphia.

Rhus Venenata Antigen (Strickler).—A solution of a substance extracted from the fresh leaves of *Rhus venenata*. *Rhus Venenata Antigen (Strickler)*, is used to determine sensitiveness to *Rhus venenata*, to desensitize persons against poisoning with *Rhus venenata*, and to relieve the symptoms of the dermatitis produced through contact with the plant. *Rhus venenata antigen (Strickler)* is supplied in packages of four 1 c.c. vials for use in prophylaxis and treatment, and as *Rhus venenata dermal test* in packages of a 1 c.c. vial (accompanied by a vial of *Rhus Tox. Dermal Test*) for use in determining sensitiveness. American Chemical Laboratories, Philadelphia. (Jour. A. M. A., June 27, 1925, p. 2003).

PROPAGANDA FOR REFORM

Geroxide (Germanium Dioxid) Not Accepted for N. N. R.—The Council on Pharmacy and Chemistry reports that under the proprietary name "Geroxide," the Germanium Products Co., Trenton, N. J., markets a solution of germanium dioxid. The solution is prepared by dissolving germanium dioxid in water and neutralizing the weakly acid solution of the germanic acid with sodium hydroxide and making it isotonic by addition of sodium chloride. The Germanium Products Co. claims that germanium dioxid acts as a powerful stimulant to the red bone marrow and that its use is indicated in primary and secondary anemias. These claims are based on one group of workers. Independent work which bears on the therapeutic worth of germanium dioxid has not confirmed the claims which are advanced for the drug. In consideration of the lack of evidence for the therapeutic value of germanium dioxid, the Council voted not to accept Geroxide for New and Non-official Remedies on the ground that the claims made for it are unwarranted. This action was taken without passing on the question of the recognition of a proprietary name for a simple solution of the well known substance germanium dioxid. (Jour. A. M. A., June 6, 1925, p. 1856).

Prophylaxis of Endemic Goiter.—The prevention of simple goiter in endemic goiter regions by the administration of iodine tablets to school children and by the use of iodized salt is being extended year by year. Iodine tablets are given the school children of the following cities (and doubtless in other cities): Ithaca, North Tonawanna, Syracuse, Watertown and Cortland in New York State; Akron and Cleveland, Ohio, and Zurich, Switzerland. The health department of Michigan has cooperated with the state medical association, salt manufacturers and wholesale dealers, so that all table salts sold in Michigan contain small amounts of iodine. Many of the schools of West Virginia, Washington and Utah are applying this preventive measure under the state boards of health. Rochester, New York, iodizes the city water supply for one week twice yearly. The dangers and untoward effects from the use of iodine for the prevention of goiter are negligible; preventive work among school children should be carried out under medical supervision. The occasional appearance of "iodine hyperthyroidism" seems to be due to the use of large doses or to the continued use of iodine by a person over twenty with adenomatous goiter. A study of the literature does not reveal any report of a case due to the administration of iodine preparations in the schools according to the dosage recommended by Marine and Kimball. (Jour. A. M. A., June 13, 1925, p. 1858).

The Action of Quinine.—Quinine has long had some vogue as an antipyretic. It has been given a rather high rating among the fever allaying drugs because of the belief that it acts not merely by depressing the heat regulating centers, but also by decreasing heat production. For the febrile patient treated with quinine, some advantage might accrue from prevention of the undue loss of protein that the heightened tissue breakdown is believed to bring about in fevers. A recent investigation, however, indicates conclusively that in nonmalarial febrile conditions it is not possible through quinine therapy to lessen materially the waste of energy or the destruction of body tissue. (Jour. A. M. A., June 27, 1925, p. 2006).

Witter Water.—This is a product put out by Witter Medical Springs, San Francisco. It is advertised as a remedy for "high blood pressure." The public is warned of the tragic consequences of this condition and given the usual line of testimonials telling how Mrs. A., with high blood pressure and one foot in the grave, took Witter Water and recovered. Among other constituents, Witter Water is claimed to contain nitrites and it is stated that this "undoubtedly, accounts for its direct action in the reduction of blood pressure." Witter Water is also claimed to contain sufficient iodide to produce beneficial action. According to an analysis, the amount of sodium nitrite present in Witter Water is one and one-half grains per gallon and for thirty dollars the sufferer from high blood pressure would get approximately ten grains of sodium nitrite. According to the analysis there is seven one-hundredths of a grain of potassium iodide in each gallon of Witter Water. Thirty dollars worth of Witter Water contains less than one-half grain of potassium iodide. Yet the exploiters seem to think that the sodium nitrite content and the potassium iodide content are something to talk about. (Jour. A. M. A., June 27, 1925, p. 2021).

Sensitization to Pollen.—If a patient reacts to both giant ragweed (*Ambrosia trifida*) and common ragweed (*Ambrosia artemisiifolia*) the first conclusion

might be that he is sensitive to both pollens. However, it would be best to make retests with varying dilutions of the two pollens to find out whether the patient is much more sensitive to one than to the other. If the patient reacts equally to the two pollens, he should be treated with an extract representing the two pollens. Treatment with one pollen would not protect him against sensitiveness to the other pollen, since pollen sensitization is highly specific. (Jour. A. M. A., June 27, 1925, p. 2022).

Preventive Treatment for Rabies.—The *Harris Pasteur Treatment for rabies* can be given and kept on hand by the physician and is reliable. New and Non-official Remedies, 1925, lists the antirabic vaccine of a number of manufacturers which is sent out in packages of seven, fourteen and twenty-one doses. Recently the Council on Pharmacy and Chemistry has announced the acceptance of antirabic vaccine of this class marketed by the H. K. Mulford Co., the Cutter Laboratory and the Lederle Antitoxin Laboratories. (Jour. A. M. A., June 27, 1925, p. 2022).

Book Announcements

Approaching Motherhood. Questions and Answers of Maternity. By GEORGE L. BRODHEAD, M. D. Visiting Obstetrician, Bellevue and Allied Hospitals, Harlem Division, New York City. Paul B. Hoeber, Inc., New York. 1925. 12 mo. 193 pages. Price \$1.50 net.

Simplified Nursing. By FLORENCE DAKIN, R. N., Inspector of Schools of Nursing, State of New Jersey. Philadelphia, London, Montreal. J. B. Lippincott Company. 1925. Octavo of 499 pages. Cloth.

Physical Diagnosis of Diseases of the Chest. By JOSEPH H. PRATT, A. M., M. D., and GEORGE E. BUSHNELL, Ph.D., M. D. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 522 pages with 166 illustrations. Cloth. Price \$5.00 net.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery and the Various Specialties. By Leading Members of the Medical Profession throughout the World. Edited by HENRY W. CATTELL, M. D., Philadelphia, and Collaborators. Volume II. Thirty-fifth Series. 1925. Philadelphia and London. J. B. Lippincott Company. 1925. 8vo of 311 pages. Cloth.

Proceedings of the International Conference on Health Problems in Tropical America. Held at Kingston, Jamaica, B. W. I., July 22 to August 1, 1924, by invitation of the Medical Department, United Fruit Company. Published by United Fruit Company, Boston, Massachusetts. 1924. 8vo of 1,010 pages. Illustrated. Cloth.

United Fruit Company, Medical Department. Thirteenth Annual Report. 1924. General Offices: Boston, Massachusetts. Paper. 247 pages.

Enzyme Intelligence and Whence and Whither. Illustrating that enzymes and ferments are the ultimate, indestructible and invisible units of life and are conscious and intelligent. That these units produce and maintain all living things we see. That our body is a Republic established by

enzymes coming from the invisible world of life to which we return when we die. By NELS QUEVLL, author of "Cell Intelligence, the Cause of Evolution." Reg. Phar. LL. B. The Colwell Press, Inc., Minneapolis, Minn. 1925. 8vo., 578 pages, illustrated. Cloth. Price, \$3.65 postpaid.

A Compend of Diseases of the Skin. By JAY FRANK SCHAMBERG, M. D., Professor of Dermatology and Syphilology, Graduate School of Medicine, University of Pennsylvania; Director of the Research Institute of Cutaneous Medicine, Philadelphia, etc. Seventh Edition, Revised and Enlarged. 12mo. of 316 pages with 119 illustrations. Philadelphia. P. Blakiston's Son and Company, 1012 Walnut Street. 1925. Cloth. Price \$2.00.

A Compend of Obstetrics. Especially Adapted to the use of Medical Students and Physicians. Revised and edited by CLIFFORD B. LULL, M. D., Instructor of Obstetrics, Jefferson Medical College, Philadelphia; Assistant Obstetrician to the Maternity Department, Jefferson Medical College Hospital, etc. Tenth Edition. 12 mo. 283 pages with 84 illustrations. Philadelphia. P. Blakiston's Son and Company, 1012 Walnut Street. 1925. Cloth. Price \$2.00.

Operating Room Procedure. For Nurses and Internes. By HENRY C. FALK, M. D., Assistant Attending Surgeon to the French Hospital; Instructor in Surgery at New York University and Bellevue Medical College. With a Foreword by EUGENE H. POOL, M. D., New York. 12mo. 385 pages with 275 illustrations. G. P. Putnam's Sons, New York and London. The Knickerbocker Press. 1925. Cloth. Price \$2.50.

Three Merry Widows. A New View of, and Remedy for, Ordinary Insanity; and a New System for Asylum and Prison Management. Dedicated to the Endocrinologists and to the Roentgenologists of America, for Advice and Assistance which Enabled Completion of the Matter. Copyrighted 1925. By L. R. Whiting, 913 East Ninth Street, Austin, Texas. 12mo. 24 pages. Paper.

KINDNESS

One never knows
How far a word of kindness goes;
One never sees
How far the smile of friendship flees.
Down through the years
The deed forgotten reappears.

One kindly word
The soul of many here has stirred.
Man goes his way
And tells with every passing day
Until life's end:
"Once unto me he played the friend."

We can not say
What lips are praising us today.
We can not tell
Whose prayers ask God to guard us well.
But kindness lives
Beyond the memory of him who gives.

—Edgar A. Guest.

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AUGUST, 1925.

No. 5

Editorial

Dear Doctor:

There appears to be more typhoid than usual. We would appreciate it if you would report cases promptly and let us know if you can ascribe any probable cause, such as visits (two weeks before becoming sick) to particular swimming pools, beaches, ponds, or places where insanitary conditions may exist.

Please urge typhoid vaccination generally, and insist on it in homes or communities where typhoid exists. Always urge the importance of the safe disposal of human excreta so that flies will not have access to it and so that it will not endanger drinking water; also urge the importance of protecting all drinking water.

ENNION G. WILLIAMS,
State Health Commissioner.

Plagiarism.

The act "of appropriating writings or ideas of another and passing them off as one's own; the stealing of the writings of another and publishing them as one's own composition," according to Hunter-Morris encyclopedic dictionary, is a definition of plagiarism. And no evil in the history of literary compositions can exceed plagiarism in the quality of its moral turpitude. The exceeding fault of appropriating another's writings and publishing them as one's own has more than once stigmatized and brought a killing blight to the name of writers of more or less note in the past. In the profession of literary men and in the history of literature the shame that has been attached to such disgraceful practice has made its present-day occurrence infrequent. The

tone of this ethical character of literary men of today is high and praiseworthy.

However, in the vast volume of medical writings, occasioned by the enormous production of papers, addresses, case-reports, research publications, books, et cetera, coming "hot off the press" of our time, one can not help but notice a certain laxity that has crept in on this score. The reproduction and duplication of ideas and writings is necessary often times, in the demands of modern medical progress, when medical societies, meetings and medical monthly and weekly publications are so numerous. It is but right, therefore, to utter a note of caution and to emphasize the ethical necessity for careful notation in manuscripts of the origin of the material, either in ideas or words. Writers should tighten up and correct this lax or thoughtless practice, if medical publications of today are not to suffer a lamentable decadence in high moral standards.

Unfortunately, we must call attention to an egregious and gross instance of plagiarism. Besides, it is our unpleasant duty to express our emphatic disapproval and condemnation of it. We refer to the use made of Dr. Wolbarst's article, which is brought to the attention of our readers in an open letter from Dr. Wolbarst, published in this issue of the MONTHLY, on page 319. The flagrant reproduction, without credit, of Dr. Wolbarst's article, is convincing. So gross an act of plagiarism offends ethical sense and violates the moral standards of medical authors and publications. And, in expressing this public disapproval, the VIRGINIA MEDICAL MONTHLY is only giving voice, it feels, to the condemnation which our readers, members of the Medical Society of Virginia, will experience as they read (with regret) Dr. Wolbarst's letter and the photostatic reproduction in parallel columns of his original paper and the plagiarized production.

Bile and Bile-Tract Disease.

Bile is a digestive fluid only in part. The bile acids, alone, seem to have important functions in digestive processes. While the other constituents of the bile help, they seem to be more waste products: bile pigments from destroyed hemoglobin, cholesterol from broken-down fat, and lecithin from expended brain and nerve tissue. Do these systems of the blood, fat, and nerve tissue of the body find in the bile the readiest medium of excretion

of their waste? The bile acids, however, serve a definite digestive function; in addition to serving as a "menstruum for dissolving the cholesterin" in the bile, they assist in splitting and absorbing the fats in the intestinal tract and, besides, they serve as activating hormones to the flow and quality of the digestive secretion from the pancreas. One must not overlook in thinking of the bile, however, the importance of it as an excretion, as well as a digestive product, in the upper reaches of the intestinal tract, pouring in 500 to 800 c.c. daily. So, one may well consider briefly some phases of bile physiology before one comments upon the dysfunction of bile and the diseases of the bile tract.

It seems evident from experimental work of physiologists that the bile pigment arises outside of the liver by disintegration of hemoglobin and is excreted by the liver cells as a part of bile; that bile acids are secreted by the liver cells; that cholesterin is not formed in the liver, but is excreted through the liver from the blood "which collects it from various tissues of the body" (Howell); that lecithin, likewise, occurring "in largest quantity in the white matter of the nervous system," derived from the liver or from the body, is excreted in the bile. In this connection one may note the sum of bile constituents as expressed by Howell, in the following terms:

Solids -----	2.529	Fatty acids from	
Water -----	97.480	soap -----	0.0630
Mucin and pig-		Cholesterin -----	0.0630
ment -----	0.529	Lecithin -----	0.0220
Bile salts -----	0.931	Fat -----	0.0220
Taurocholate -----	0.3034	Soluble salts -----	0.8070
Glycocholate -----	0.62761	Insoluble salts --	0.250

The out-pouring of bile is continuous, but the variation in the amounts are influenced by the constituents of the blood flowing through the liver. The portal blood, containing stimulating food products from the intestines, the bile pigments reabsorbed from the intestines, and the gastric chyme, all stimulate the formation of bile. This product, flowing from liver lobule through the bile radicals courses on to the common bile duct and to the gall-bladder. The bile enters the duodenum "periodically during the time of digestion," being held back by the sphincter, is diverted to the gall-bladder where condensation and concentration of it occurs, storing it for future use. The passage of food, gastric chyme, into duodenum, particularly the products of protein and fat gastric digestion, appears to excite, through "probably

reflex action, a contraction of the gall-bladder and an inhibition of the sphincter, relaxing the opening into the intestines."

It is in the region of the common duct, and gall-bladder connections, that pathology most often occurs. Digestive disturbances may easily occur as symptoms. Gall-stone formation, after months of perversion of bile and after a long period of inflammation of the walls of the bile ducts and gall-bladder, may be expected.

BILE DUCTS

The bile ducts vary* in arrangement and relationship: cystic duct may not be joined to the common duct until just before it enters the duodenum; the cystic and common may not unite; the common duct may open into duodenum with or without junction with the duct of Wirsung. The variations make for slight difference in assortments of symptoms. Catarrhal jaundice is a common symptom of bile obstruction. This symptom may be of serious import, but, usually, may be taken as an indication of duodenal inflammation, bringing about swelling of ampulla of Vater and inflammation of the outlet of the common duct, setting up an obstruction to the flow of bile. Thus, retention of bile brings about jaundice. To repeat, mucous membrane of duodenum, ampulla of Vater, or common duct, may become irritated or infected, and may produce an obstructive swelling at this bile exit, and in this way produce biliousness or jaundice, or both. The important consideration in this matter is to properly evaluate the symptoms of jaundice; to make a proper interpretation of its underlying causes and associations.

Infective cholangitis or infection of the bile ducts follows more serious inflammatory changes. It may be suppurative. Suppurative cholangitis follows a malignant infection such as from bacilli streptococci, staphylococci, pneumococci, bacilli coli and bacilli typhosus. In such a state of infection the ducts are dilated, liver enlarged and bile is purulent. The patient shows hectic symptoms, jaundice present (or absent); extreme prostration and gastric intestinal dysfunction. A milder but more prolonged bile tract disorder may be noted under the generalization of chronic infective cholangitis, which may be associated with or without gall-stones. This condition involves

*Read Oxford Medicine on Bile Tract Disease.

pathologic consideration of moment and we can only speak of it thus briefly.

GALL-BLADDER

The gall-bladder is a common site of disease and is intimately connected with bile duct inflammation and infection, as well as with the nature of the bile itself. Routes of infection of gall-bladder and etiology of gall-bladder disease are still under discussion. It is easy to conceive, however, that the usual channels of infection operate here as in other parts of the body. The microorganism may enter the mucous membrane through blood stream, lymphatics, through bile, or from ducts. Cholecystitis may be secondary to infection for distance primarily; pneumonia, influenza, septicemia, tonsillitis, or other focal infections, appendicitis, pyelitis, prostatitis, urethritis, etc. The gall-bladder may be inflamed, but not so acutely as to produce obtrusive symptoms, but yet so as to affect very seriously the digestive function, to produce discomfort in epigastrium, to set up symptoms usually spoken of as "biliousness." Under such a symptom-complex the quality of the bile and the quantity reaching the duodenum to enter into the digestion processes there, is materially altered and diminished. Under such perversions of bile function, patients suffer, sometimes indefinitely, but no less actually, symptoms of bile poisoning. This bile poisoning displays itself in gastric and intestinal symptoms, in urinary symptoms, in skin symptoms and in nervous and mental symptoms.

GALL-STONES

Cholelithiasis may occur from mere precipitation of cholesterol when constantly present in an excessive amount in gall-bladder bile. This may cause an aseptic cholesterol gall-stone. Contamination by microorganisms of bile, bile ducts, or gall-bladder, under conditions of "hypercholesterinemia or high cholesterol content of bile," or even under normal bile, makes for bile stone formation. The contributory factors to the bile stone stage are quite obvious; long continued dietary abuses are the most common. Excessive carbohydrate and fat diets tend to gall-stone formation. Catarrhal congestion of duodenal tract tends to stagnate the fluid movement of the bile and obstruct its prompt out-flow, and serves to favor the precipitation of cholesterol and bile pigment, which forms the initial step in gall-

stone production. Infection of the bile, the ducts, or the gall-bladder by microorganisms arriving from primary foci, proximate or remote foci, only make the process more certain and inevitable. Solitary pure cholesterol stones are rare, for infection and inflammation usually, in time, add to the formation bilirubin calcium; these form about 60 per cent of all hepatic calculi. There are certain variations in chemical formation, as one may easily conceive. The form and number of stones are known to vary greatly. The important observation in this connection is that clinicians and surgeons must consider patients of this type as being in the late stage of biliary disease. Really the symptoms of biliary colic are the symptoms of late biliary disease. This phase of biliary pathology is preceded by a train of symptoms, or conditions, which if treated, may prevent such gross and such late and ugly symptoms. For this, however, physicians are not to be held reprehensible, because all too frequently patients with clear-cut and definite symptoms of "biliousness" and gastric disturbances, accompanying chronic foci of infection, go along for months and years, abusing all reasonable laws of diet and physical well-being until, eventually, unable to avoid appealing for medical aid, they come under observation in the late stage of biliary disease in the form of an hepatic colic, an attack of jaundice or suppurative cholangitis, cholecystitis, or chronic digestive disturbances.

In conclusion, one may read Judd's¹ well-considered article in thinking on the questions of surgical procedures in jaundiced patients. Attention is directed to the work of McNee on the mechanism of jaundice, describing possible avenues through which jaundice may occur. Judd adopts McNee's classification of jaundice, which divides jaundice into three clinical groups: (1) obstructive hepatic jaundice, (2) toxic and infectious hepatic jaundice, and (3) hemolytic jaundice. Surgery can, according to Judd, accomplish "a great deal in cases of obstructive jaundice by relieving the obstruction." Surgery can also help hemolytic jaundice by removing the spleen. But in the case of infectious hepatic jaundice, it is "difficult to ascertain how much can be accomplished by treating them surgically."

Pain plays an important and a significant part in the history of jaundice, according to

1. Judd, Jour. A. M. A., Vol. 85, No. 2, page 88.

our author, in that its presence indicates the probability of stone and its absence points more toward malignancy. As operation for removal of obstruction is imperative, certain precautionary measures are advocated in the nature of pre-operative preparation. These may be brought out chiefly in this manner:

(a) If jaundice appears to be receding, operation may wisely be postponed as long as patient improves.

(b) The long standing case of jaundice is the greater risk and should be handled with greater caution.

(c) In cases where jaundice has turned green or blackish, with or without petechial hemorrhagic areas, operations should not be performed. This rather indicates malignant lesion beyond hope.

(d) "No jaundiced patient should be operated on until a very careful investigation has been made":

1. Coagulation time of blood and calcium content.

2. Estimation of serum bilirubin.

3. Use of intravenous administration of calcium in three-day series in effort to bring up coagulation time and reduce bilirubin.

Judd cites experience of 142 cases operated upon in Mayo Clinic with disease of common duct; 104 had some degree of jaundice at the time of operation; eleven of the 142 died, four of which showed hemorrhage.

The author concludes this interesting article with the following summary:

"A practical application is made of the work of McNee, van den Bergh, Aschoff and Mann to the surgical treatment of jaundiced patients. The most valuable aid in the handling of jaundiced patients is the van den Bergh test for the quantity and quality of bile in the serum.

"Much has been accomplished in the pre-operative treatment of jaundiced patients, which means more than just the intravenous administration of calcium. I believe that in deeply jaundiced patients the common ducts should usually be drained with a tube, and the gall-bladder should be drained if necessary but not removed.

"Hepaticoduodenostomy is the procedure of choice in cases of post-operative stricture. Cholecystogastrostomy offers considerable relief in certain types of inoperable malignant diseases, and also seems helpful in cases of hepatic infectious jaundice.

"Multiple needle punctures in cases in which the liver is badly damaged allow a certain amount of blood and fluid to drain out, and may tend to restore the function of the liver."

News Notes

Time Drawing Near For Richmond Meeting.

Shortly after summer vacations stop, the Medical Society of Virginia will hold its annual meeting in Richmond. The dates are October 13-16, and a large attendance is expected. Cards have been mailed to all members, stating that "Puerperal Infection" is the subject for general discussion, and at the same time asking for titles of papers. On this card was explained the resolution relative to limiting the number of papers to be presented, so that the Society might have only one section instead of two, as for the past few years. The resolution is as follows:

"1. No title shall be accepted for the program prior to two months before date of the annual meeting. As provided in the By-Laws, an announcement concerning the annual meeting and request for titles of papers shall be mailed by the Secretary-Treasurer to all members of the Society.

"2. On and after the day which would be two months prior to the first day of the annual meeting, titles will be received until fifty are in hand. In the fifty titles referred to, provision shall be made for the papers of the invited guests and papers on the subject of general discussion.

"3. After the fifty titles are received, the Program Committee shall arrange and classify them according to related subjects."

This will not greatly reduce the number of papers to be presented in comparison with programs of previous years, but we would suggest that no member should send a title for the program unless he is reasonably sure of being able to attend, as he might thus keep off the program some member who can be on hand.

Dr. T. D. Jones, chairman of the Richmond committee in charge of arrangements, has appointed the following chairmen to look after details:

Reception and Automobiles—Dr. Fred M. Hodges.

Badges, Printing and Publicity — Dr. Thomas W. Murrell.

Golf—Dr. E. H. Terrell.

Finance—Dr. Carrington Williams.

Entertainment—Dr. Clifton M. Miller.

Scientific Exhibits—Dr. J. Shelton Horsley.

Commercial Exhibits, Hotels and Meeting Halls—Dr. James K. Hall.

Ladies—Mrs. Fred M. Hodges.

Dr. Hunter H. McGuire, Winchester, is president. His invited guests, Drs. George E. de Schweinitz and Alfred Stengel, of Philadelphia, and Dr. David S. Hillis, of Chicago, will be a big attraction. Make your plans now to be on hand.

The Southwestern Virginia Medical Society

Will hold its regular meeting at Mountain Lake, Va., August 27 and 28, Dr. F. H. Smith, Abingdon, presiding. Dr. Estill Caudill, Narrows, Va., is chairman of the Committee on Arrangements and he and the secretary, Dr. Elbyrne Gill, Roanoke, will be glad to furnish information. A subscription banquet will be held on the first evening. A symposium on "Pelvic Diseases" will be held and a number of other interesting papers will be presented by visitors and members.

Midsummer Vacationists.

Dr. and Mrs. O. B. Darden have returned to their home at Westbrook Sanatorium, Richmond, after a visit to Statesville, N. C.

Dr. and Mrs. R. F. Thornhill, Palaski, spent sometime in July visiting relatives at Orange, Va., the doctor's former home.

Dr. Clarence Porter Jones and son, of Newport News, Va., spent the first two weeks in July on a fishing trip at Nimrod Hall, Va.

Dr. and Mrs. Stuart Michaux, Richmond, on a recent motor trip visited Lexington and Natural Bridge, Va.

Dr. and Mrs. J. V. Jordan, of Covington, left about the middle of July on a motor trip for a visit to relatives in Ottawa, Canada, and in Pennsylvania. They expected to be away for several weeks.

Dr. O. C. Page, of Brodnax, was a visitor in Richmond, the middle of July.

Dr. B. L. Hillsman recently returned to his home in Richmond after a fishing trip on the Rappahannock River.

Dr. J. T. Walker has returned to Gordonsville, Va., after spending sometime at Slab Fork, W. Va., with Dr. F. L. Banks.

Dr. L. H. Lewis, of Lawrenceville, has returned home after a two weeks' visit with his family at Goshen and Harrisonburg, Va.

Dr. F. H. Lee has returned to his home in Richmond after visiting a number of points of interest in the West.

Dr. Phil H. Neal, of the class of '23, Medical College of Virginia, after two years' internship at Gouverneur Hospital, New York City, was a visitor in Richmond last month.

Dr. Rachel Weems, a member of the class of '24, Medical College of Virginia, who spent the past year as an interne at Memorial Hospital, Worcester, Mass., is spending the summer months with her parents in Ashland, Va.

Dr. and Mrs. Howard R. Masters, Richmond, have been spending a vacation in Asheville, N. C.

Dr. and Mrs. Fred Hodges, Richmond, left the last of July for a motor trip to Canada and some places of interest in the northern states. They will be away several weeks.

Dr. and Mrs. E. H. Luck, Roanoke, have been visiting at Sweet Springs, W. Va.

Dr. J. A. Riffe, Covington, was another recent guest at these Springs.

Dr. and Mrs. E. H. Terrell and daughters, Richmond, left on a motor trip about the first of August and expected to spend several weeks visiting various places of interest in Canada and in the northern states.

Dr. R. W. Garnett and children returned to their home in Danville, about the middle of July, after a visit to Virginia Beach.

Dr. and Mrs. Murat Willis and children, Richmond, are spending the month of August at Rockbridge Baths, Va.

Dr. and Mrs. J. Morrison Hutcheson and children, Richmond, are also spending August with Dr. Hutcheson's mother at Rockbridge Baths, Va.

Dr. S. E. Hughes, Danville, has been spending several weeks in Asheville, N. C.

Dr. and Mrs. Elbert B. Talbot returned to their home in Richmond, about the middle of July, after a visit through the Valley of Virginia.

Dr. William R. Weisiger, Richmond, is home again, after a vacation spent in New York City and New Haven, Conn.

Dr. and Mrs. James M. Parrott and son, of Kinston, N. C., are on a western trip. They will spend the greater portion of their vacation in Wyoming.

Dr. and Mrs. Alfred S. Grussner have returned to their home at Bassetts, after a visit to Richmond and New York.

Dr. and Mrs. A. G. Brown, Jr., Richmond, are home again after a visit to friends near Charlottesville, Va.

Dr. R. C. Fravel, Richmond, after a short visit to Canadaigua Lake, N. Y., is again visiting relatives in Woodstock, Va.

Dr. P. E. Tucker, of Buckingham, Va., has

been a recent visitor in Richmond, having come here to be with his wife who underwent an operation in a local hospital.

Dr. and Mrs. H. S. MacLean returned to their home in Richmond, the latter part of July, after a visit to Atlantic City, N. J.

Dr. L. O. Vaughan, Waverly, was a recent visitor in Richmond.

Dr. and Mrs. J. K. Richardson, Richmond, with a party of friends, recently enjoyed a motor trip through the Valley of Virginia.

Dr. W. O. Bailey, Leesburg, is home again after a visit to Warrenton, Va.

Dr. and Mrs. J. C. Flippin, University, Va., are spending several weeks at Camp Alleghany, Va.

Dr. and Mrs. M. R. Faville, Roanoke, were recent visitors at Monterey, Va.

Dr. and Mrs. H. S. Hedges have returned to their home in Charlottesville, after a vacation spent on Chesapeake Bay.

Dr. W. S. Beazley, Jr., who for the past year has been an interne at the New York Foundling Hospital, New York City, is now with his parents in Richmond.

Dr. and Mrs. T. E. Patteson and family, of Ransons, have been enjoying a visit through the Valley of Virginia with a party of friends.

Dr. and Mrs. Thomas F. Gill, Richmond, have returned from a two weeks' visit at Colonial Beach, Va.

Dr. George G. Hankins, of Philadelphia, Pa., recently visited friends at his old home in Williamsburg, Va.

Dr. and Mrs. J. F. Geisinger, Richmond, are on a motor trip with a party of friends to Canada and points of interest in the northern states.

Dr. and Mrs. W. G. Trow, Warrenton, went early in August with a party of friends for a camping trip at Happy Creek on the Shenandoah River.

Dr. A. L. Stratford, II, has returned to his home in Richmond, after a vacation spent in visiting friends in Canada, Pennsylvania, Maryland and West Virginia.

Dr. and Mrs. L. T. Royster, University, Va., are spending sometime at Virginia Beach.

Dr. and Mrs. Frank P. Smart, Norfolk, Va., have been visiting friends at Crozet, Va.

Dr. and Mrs. Arthur S. Brinkley have returned to their home in Richmond, after a visit at Virginia Beach.

Dr. and Mrs. J. Weldon Smith and family,

of Farmville, were recent visitors at Virginia Beach.

Dr. and Mrs. Kenneth Bradford have returned to Staunton, after an automobile tour in Canada.

Dr. and Mrs. John W. Carroll, of Lynchburg, have been spending sometime at Virginia Beach.

Dr. and Mrs. W. E. Anderson, Farmville, are spending the late summer at their country home in Dinwiddie County, Va.

Dr. and Mrs. Ramon D. Garcin, Richmond, have been spending the summer at Goshen and Lexington, Va., where Dr. Garcin has greatly improved after his illness of last winter.

Dr. S. T. A. Kent, of Ingram, recently visited his daughter in Pulaski, Va.

Dr. Waller Jameson, Roanoke, was a mid-summer guest at Crockett Springs, Va.

Attend Medical Reserve Officers' Training Camp.

The following doctors from Virginia, District of Columbia, North Carolina and West Virginia spent two weeks in July attending the Medical Reserve Officers' Training Camp at Carlisle, Pennsylvania:

VIRGINIA—Major William A. Brumfield, Blacksburg; Lt. Col. Giles B. Cook; Front Royal; Major Charles M. Edwards, Richmond; Capt. George A. L. Kolmer, Salem; Major William J. Olds, Front Royal; and 1st Lt. George C. Tyler, Chester.

DISTRICT OF COLUMBIA—1st Lt. William M. Ballinger; Major J. Wesley Bovee; Major Coursen B. Conklin; Lt. Col. James C. Cumming; Capt. Everett M. Ellison; Col. Thos. M. Foley; Major Charles I. Griffith; 1st Lt. Daniel S. Hatfield; Major Joseph P. Madigan; 1st Lt. John A. Reed; Col. Edward G. Seibert; Major Joseph D. Stout; and Major Daniel Stuart, all of Washington, D. C.

NORTH CAROLINA—Capt. George G. Dixon, Ayden; Major Julius A. Doshier, Southport; Capt. Lewis J. Dupree, Kinston; Major Philip S. Easley, Statesville; Major John G. Hoggard, Wilmington; Col. John W. Long, Greensboro; Col. John W. MacConnell, Davidson; Major Jay H. McClellan, Asheville; Lt. Col. Coite L. Sherrill, Statesville; Major Victor R. Small, Clinton; Capt. William E. Woods, Elizabeth City.

WEST VIRGINIA—Col. Jonathan E. Burns, Charleston; Lt. Col. Lurty M. Harris, Wheel-

ing; and Major Hugh G. Nicholson, Charleston.

Dr. Graves with St. Elizabeth's Hospital, Pearisburg.

Drs. W. C. and E. L. Caudill announce the addition to the staff of St. Elizabeth's Hospital, Pearisburg, Va., of Dr. K. D. Graves, formerly associated with Lewis-Gale Hospital, Roanoke, Va. Dr. Graves will be director of the department of internal medicine and clinical pathology.

Sir Aukland Geddes Assumes Leadership of Social Hygiene Council.

Sir Aukland Geddes, former British ambassador to the United States, has accepted the presidency of the British Social Hygiene Council. As Sir Aukland Geddes is already president of the Society for the Prevention of Venereal Disease, it is anticipated that, if the present efforts are continued and extended, venereal diseases in England will be reduced to a minimum.

Dr. George H. Thomas,

After a service of a year at the U. S. Veterans' Bureau, Richmond, Va., has returned to Staunton, Va., where he will resume private practice.

Dr. C. P. Cake,

Of this year's class, University of Virginia, School of Medicine, is now on duty at Blue Ridge Sanatorium, Charlottesville, Va.

Dr. Charles P. Howze,

Formerly associate urologist to University of Virginia Hospital and instructor in the Medical School, has moved to Danville, Va., and opened offices at 303-305 Masonic Temple. His practice will be limited to urology.

Dr. Charles C. Hedges,

Grafton, W. Va., of the class of '22, University of Virginia, has been appointed health officer of Ohio County, West Virginia.

Dr. Ernest Mosby,

Waynesboro, Va., is one of the charter members and directors of the Kiwanis Club of that city.

Married.

Dr. Perry H. Wiseman, of Henrietta, N. C., and Miss Grace Florence Furrh, for the past few years superintendent of Hygeia Hospital, Richmond, July 7. Dr. Wiseman is a member of this year's class, Medical College of Virginia. They will make their home at Henrietta, N. C.

Dr. Clack Dickinson Hopkins, Richmond, and Miss Mildred Carter Lee, of Powhatan County, Va., August 1. They left at once for Miami, Fla.

In Charge of Health of Huntington, W. Va.

Dr. Joseph Rader has been appointed city health officer of Huntington, W. Va., and Drs. Benj. L. Hume, Charles L. Hopkins, Joseph C. Ford, and Simpson A. Smith have been appointed city physicians. Drs. Hume and Ford are alumni of the Medical College of Virginia.

American Board of Otolaryngology.

An examination was held by the American Board of Otolaryngology on May 26, 1925, at the Medico-Chirurgical Hospital, Philadelphia, with the following result:

Passed	137
Failed	20

Total Examined157

The next examination will be held at the University of Illinois School of Medicine on October 19, 1925. Applications may be secured from the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Mo.

Dr. W. H. C. White,

Recently of University, Va., is now at Ancker Hospital, St. Paul, Minnesota.

Dr. Fred M. Horsley

Who has been at Berryville, Va., for the past several months, is now at his old home at Lovingson, Va.

South Carolina Has Effective System of Disease Reporting.

Dr. James a Hayne, State Health Officer of South Carolina and Collaborating Epidemiologist of the U. S. Public Health Service, has instituted a new and decidedly more effective system of disease reporting by physicians. Each week a card is mailed to physicians for the report of the number of cases of diphtheria, gonorrhea, syphilis, malaria, smallpox, tuberculosis, and certain other diseases. The greater effectiveness of this system of reporting is shown by the fact that in the first month of its operation 734 cases of syphilis were reported as against an average of 245 cases for each of the preceding ten months, or three times as many cases as were reported formerly. There is a still higher rate of increase in the number of reported cases of gonorrhea. Over seven times as many cases of this disease were re-

ported under the new system as were reported formerly.

Dr. Charles B. Crute,

Farmville, Va., has been named commander of the re-organized American Legion Post at that place.

Dr. L. O. Crumpler,

Danville, Va., the latter part of July won the speer cup offered for the open tournament of the Danyille Golf Club.

The Frederick Kimball Stearns Memorial Fellowship in Medicine

Has been founded by Frederick Stearns & Company of Detroit, at the University of Michigan, in honor of the late Frederick Kimball Stearns.

Mr. Stearns was a life-long patron of the Arts and Sciences, and had shown a special interest in the progress of the University of Michigan. The Stearns' Botanical Gardens, the Stearns' Fellowship in Pharmacy and the Stearns' Collection of Musical Instruments, the most complete collection of its kind in the world, were evidences of his interest and generosity.

While the medical fellowship is to be used at the direction of the University medical authorities, the work during the coming year will be devoted to researches on Insulin and Insulin therapy. The study of this problem has been of the greatest interest also in the Scientific Laboratories of Frederick Stearns & Company in the course of the development of their product, "Insulin-Stearns," which has been so extensively used in the treatment of diabetes.

Maine Legislates Against Spread of Venereal Diseases.

As a measure for the protection of the community from venereal infection the Maine Legislature has passed an amendment whereby superintendents of State, county, and municipal charitable or correctional institutions are required to report to the State Department of Public Health any inmate about to be released and who is afflicted with a venereal disease in an infectious form. The report is to be made not later than fourteen days before the estimated date of release, so that the State Department of Public Health may "take necessary measures to protect others from such infection."

Re-appointed on State Board of Health of North Carolina.

Dr. Richard H. Lewis, of Raleigh, has been re-appointed a member of the State Board of Health of North Carolina for a period of six years. Dr. Lewis has been a member of the Board continuously since 1884.

Dr. Lee S. Liggan,

After a two years' internship at Memorial Hospital, Richmond, has located at Callao, Va., for the practice of his profession. Dr. Liggan is a member of the class of '23, Medical College of Virginia.

Dr. J. Gordon Boisseau,

Richmond, was elected a member of the executive committee of the Church Hill post of the American Legion, at its meeting the latter part of July.

Re-appointed on School Board.

At a meeting of the school electoral board of Clarke County, last month, Dr. Chas O. Dearmont, White Post, was re-elected president, and Dr. J. E. Harris, Berryville, was re-elected a member of the board.

Re-appointed Members of South Carolina State Board of Medical Examiners.

Drs. Joseph T. Taylor, of Adams Run, and Frank M. Lander, Williamston, have been re-appointed members of the State Board of Medical Examiners of South Carolina.

Officers in Winchester Post, American Legion.

Drs. P. W. Boyd and B. B. Dutton, of Winchester, have been elected officers in the Robert I. Conrad Post, American Legion, of that place.

Drs. Edmunds and Tipton,

Danville, Va., announce the subdivision of their practice as follows: Dr. T. W. Edmunds, diseases of the eye, and Dr. J. W. Tipton, diseases of ear, nose and throat. They will maintain their partnership and offices in the Arcade Building, that city.

Hospital Elects Officers.

The staff of the Virginia Baptist Hospital, Lynchburg, Va., has elected Dr. F. O. Plunkett chief; Dr. Hunter B. Spencer vice-president; and Dr. F. Musgrave Howell secretary.

Abbott Laboratories to Have New Plant.

The new plant of the Abbott Laboratories, now nearly ready, will be, when occupied, the finest complete pharmaceutical and research plant in the world. Here the newest synthetic,

medicinal chemicals are made in large quantities by improved processes, insuring purity and accuracy. Here also are extracted from the crude drugs the medicinal principles used largely throughout the pharmaceutical industry as well as by the medical profession.

Larger quarters will be provided for the extensive research work now being carried on by a large staff of chemists and new buildings are being provided for the manufacture of the well-known Abbott pharmaceutical specialties.

The administrative office of The Abbott Laboratories, located for many years in Ravenswood, will be moved about October 1st of this year to the new plant. The postoffice address will be Waukegan, Ill., twenty-five miles north of Chicago on the C. & N. W. R. R. About twenty-four acres of ground are owned by the Abbott Company to provide for the future expansion of their business.

Dallas Will Entertain the Southern Medical Association in November.

A warm invitation is being extended to the doctors of the South to attend the annual meeting of the Southern Medical Association this fall, and preparations are being made to entertain between four and five thousand.

Dallas has all the chief requirements for a successful convention city; ample hotels and auditoriums, easy accessibility, facilities for entertainment and diversion, coupled with whole-hearted hospitality on the part of the citizenship. It is not only a medical center of importance, but a city of interest and opportunity.

Ten trunk line steam railroads serve Dallas, with 100 passenger trains daily in and out of \$6,500,000 Union Terminal Station; 258 interurban trains leave the \$1,000,000 electric interurban station daily. Dallas is sixteen hours by rail from Kansas City, eighteen hours from St. Louis, twenty-seven hours from Chicago or Cincinnati, and forty-three hours to New York.

For those who wish to use the automobile in attending the S. M. A. convention, Dallas is located on five transcontinental highways, Bankhead, Meridian, King of Trails, Dallas-Canadian-Denver, and the Dixie Overland. These highway organizations assure the tourist of well kept roads. In Dallas County alone are 1,000 miles of surfaced highways, and a tourist camp and centers of highway information are available also.

Dallas has a number of strong clubs, splendidly housed, such as the Dallas Athletic Club, University Club, City Club, a number of fine golf clubs, and all the leading national service organizations, such as Rotary, Lions, Kiwanis are represented here—all are most hospitable in the entertainment of visitors.

Restaurants, either connected with hotels or independent, are numerous and of a generally high standard. Dallas has some of the highest priced chefs in the nation. You can get meals with a Western flavor, Mexican dishes, Chinese dishes, or old-fashioned Southern cooking. All the year truck gardens and farms are producing in some part of Texas, and this, coupled with proximity to packing houses, poultry farms and orchards, tends to keep food prices reasonable.

Dallas has thirty-seven theatres, with a combined seating capacity of 28,000. These include summer and winter stock companies, many good road shows during the season, high-class vaudeville and motion picture houses, and the Little Theatre which was twice awarded the Belasco Prize. There are theatres costing as much as \$2,000,000 and seating as many as 3,000 persons.

Dallas' climate as a whole is pleasant and invigorating, without severe extremes, and November in Texas as a rule is crisp and clear, ideal for travel and for outdoor sports.

Dr. Curtice Rosser, of the Publicity Committee, promises in later issues, to give data on the Hospital and clinical facilities of the Convention City. Meanwhile, the medical profession of Dallas and of Texas, invites you to plan to attend the Southern Medical Association Convention this fall.

Dr. W. S. Beazley,

Richmond, who suffered a fracture of the skull when he tripped in getting out of his automobile, about the middle of July, is now reported as much improved.

Dr. J. B. Winfield,

Clarksburg, W. Va., who is a graduate of the University College of Medicine, Richmond, in the class of 1897, is spending the summer with his family on their farm at Fairfax, Va.

Marriage and Social Diseases.

A recent report of the Vienna Marriage Consultation Bureau, a sub-department of the municipal public health service, shows that 18.7 per cent of the persons applying to the Bureau for information and advice are infected

with a venereal disease. The Bureau upon recent completion of two years of evidently successful service is of the opinion that the value of the service rendered by it is in the dissemination of proper information concerning venereal diseases and the serious danger of marriage in such cases. In the United States, according to the U. S. Public Health Service, seven states require a medical certificate before marriage and fourteen states, while without such a requirement, have laws which aim to prevent venereal disease infection through marriage.

The American Electro-Therapeutic Association

Will hold its thirty-fifth annual session in Chicago, with headquarters at Hotel Drake, September 15-17. The secretary is Dr. Richard Kovacs, 223 East 68th Street, New York.

Dr. Charles B. McNairy

Has resigned as superintendent of the North Carolina State Training School for the Feeble-minded, at Kinston, N. C., and has resumed private practice at Lenoir, N. C. He has been succeeded by Dr. William H. Dixon, of Ayden, N. C.

Dr. H. Hartwell Bass,

Who has been practicing for a number of years at Henderson, N. C., has moved to Philadelphia, where he expects to make his home in the future.

Birth Rate in Virginia.

According to statistics which are being compiled, although more babies were born in Virginia during 1924 than in 1923, the rate per 1,000 was slightly less, owing to estimated increase in population. The decline is entirely attributable to the lower birth rate for negroes. The white rate more than held its own. The illegitimate birth rate still remains about the same as for previous years.

Pediatric Annex for U. Va. Hospital.

Construction is progressing satisfactorily on the Pediatric Annex to the out-patient department of the University of Virginia Hospital, where children's clinics will be conducted. It is expected that this annex will be ready for use about the middle of September.

Eye Hazards in Industrial Occupations.

According to a report recently issued by the National Committee for the Prevention of

Blindness, with headquarters at 130 East 22nd Street, New York City, approximately 15,000 of the 100,000 blind persons in the United States are the industrial blind—persons who have lost their sight in the pursuit of industrial occupations. The report states that, although from a national point of view the metal manufacturing industries are the source of the greatest number of serious eye injuries, in Pennsylvania the coal mining industry ranks first as a cause of industrial blindness, and in Wisconsin hand tools constitute the greatest single cause of eye injuries. As an example of the important part that eye injuries play in industries, it is stated that in a large ship-building company's dispensary, 38 per cent of all injuries treated were eye injuries.

Dr. William C. Ford,

Woodstock, Va., has been named one of the school trustees of Shenandoah County, for the ensuing year.

Kendig Brothers Hospital,

Victoria, Va., has recently issued an interesting "Report and Descriptive Booklet" of its activities. In spite of the fact that the regular capacity of the hospital is only twenty beds, it has ministered to a large number of sick and suffering in Southside Virginia and records show that results have been as satisfactory as in larger hospitals. This hospital is thoroughly up-to-date in equipment and management and is to be congratulated upon the good work it has accomplished.

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for:

Occupational therapy aide and occupational therapy pupil aide, applications to be rated as received until August 31, 1925;

Physiotherapy aide, physiotherapy pupil aide and physiotherapy assistant, receipt of application for these positions to close August 29, September 26, October 24, and November 28, 1925;

Junior medical officer, assistant medical officer, associate medical officer, medical officer, and senior medical officer, applications to be rated as received until December 30, 1925.

Maternal Death Rates in 1924.

The maternal death rate among the industrial policy holders of the Metropolitan Life Insurance Company declined during 1924, ac-

cording to the company's statistical bulletin. Deaths from puerperal septicemia or child-bed fever dropped to 6.6 per 100,000, the lowest figures ever recorded for the women insured in the company's industrial department. The declining death rate from this disease is due to some extent at least, the report states, to more and better nursing before and after confinement and to better delivery service in the hospital and home.

School Hygiene, Panama.

Annual examination of school children was begun for the first time in Panama and the Canal Zone last October. The schools now have the services of a full-time nurse. Each child receives a thorough examination, is weighed and measured, and then referred to specialists for examination of eyes, ears, nose, throat, lungs and heart.

Child Welfare, Germany.

The importance of orthopedic exercises for school children is emphasized in a recent circular of the Prussian Minister of Public Instruction. He ordered that physical-education teachers receive training in giving such exercises.

Public Nursery School.

Highland Park, Mich., has what is apparently the first public nursery school in the United States. The school was opened December 9 and now has an enrollment of fifteen children between two and one-half and four and one-half years of age. The school also serves as a laboratory where high school girls may receive practical training in child care.

For Sale.

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Obituary

Dr. Malcolm Graham Robinson,

A well known physician of Southwestern Virginia, died at his home, Wytheville, Va., June 25. He was born in Wythe County, Va., fifty-five years ago. After attending Randolph-Macon College, he entered the Medical College of Virginia, Richmond, from which he graduated in 1897. He had been a member of the Medical Society of Virginia since 1899.

Dr. Albert John Ochsner,

Renowned as surgeon and author, died at his home in Chicago, Ill., July 25, death being due to angina pectoris. Dr. Ochsner graduated in medicine from Rush Medical College, Chicago, in 1886, following which he studied for a couple of years in Vienna and Berlin. Since 1900 he had been professor of clinical surgery in the University of Illinois. He was chief surgeon to Augustana and St. Mary's Hospitals in Chicago. He was a member of numerous medical and surgical organizations and ex-president of several.

Dr. Ochsner was one of the invited guests at the meeting of the Medical Society of Virginia in Staunton, last year, and is pleasantly remembered by those of our members who were fortunate enough to meet him at that time.

Dr. Oscar Henry Coumbe,

Of Washington, D. C., a member of the Medical Society of Virginia, died in that city, June 12. Dr. Coumbe was born in Washington, sixty-six years ago, and studied medicine at the National University of the District of Columbia, from which he graduated in 1891. Dr. Coumbe specialized in obstetrics and gynecology.

Dr. Robert W. White,

Of Chincoteague, Va., died July 21, of valvular disease of the heart. He was seventy-two years of age. He moved to this state from Wilmington, Delaware, in 1883, since which time he had practiced at Chincoteague.

Dr. Zeno Leonidas Weaver,

Formerly of Rockingham County, Va., died at his home in Williamsport, Md., July 18, aged forty-nine years. He graduated from the Medical College of Virginia, Richmond, in 1900, and was at one time a member of the Medical Society of Virginia. His wife, father and a large family connection survive him.

The Dietetic Value of Gelatine

Receives High Recognition

The edition (6th) of "Diet in Health and Disease" by Dr. Julius Friedenwald and Dr. John Ruhräh, published by W. B. Saunders Company, Philadelphia, contains the following tribute to the value of Gelatine in feeding infants and children:

"JACOBI in 1879 suggested the use of Gelatine in infant feeding, and it has been used some ever since, but only recently has the real value of Gelatine in the diet been made more widely known. It is very useful in rendering milk mixtures more digestible, preventing both gastric and intestinal indigestion by preventing the large hard curds. Where the appetite is poor, the addition of Gelatine makes the milk more palatable for some children. It is of value in infants who regurgitate or vomit their food, in diarrhea particularly where there is putrefaction. It is useful where gas is formed, either in the stomach or intestines, and in fermentative conditions in general. It is useful in preventing colic in some babies, and in the breast fed may be given in solution just before feeding. In infants who are constipated and who have large hard stools which do not adhere to the napkin, the addition of Gelatine to the formula usually corrects the difficulty. It is of great value in celiac disease, not only in supplying additional much needed food, but in correcting the accompanying indigestion. In malnutrition the addition of Gelatine to the dietary is of great value, as it is in those who have lost weight through operations, fever, or other illnesses. It has also been suggested in scurvy."

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 52, No. 6.
WHOLE No. 879.

RICHMOND, VA., SEPTEMBER, 1925

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Vol. 52, No. 6.
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RICHMOND, VA., SEPTEMBER, 1925

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Original Communications

TREATMENT OF EPITHELIOMA OF THE FACE AND EYELID

By C. AUGUSTUS SIMPSON, M. D., Washington, D. C.
Dermatologist to Providence Hospital, Episcopal, Eye, Ear, Nose and Throat Hospital, Emergency Gallinger, and George Washington Hospital.

During my internship in a hospital where all the treatment of malignancy was by surgery, and all the surgery was for malignancy, I had ample opportunity to see that the usual cancer of the eyelid was not the field for operative intervention. Indeed, fifteen years ago the excision of cancer of the lid was practiced with the same technique and instruments as it was years before, so that it is perfectly true that surgery has contributed nothing new in this field, during the last quarter of a century.

of injuring the eye and sight, later the wounds heal, leaving a cicatrix, which we all know tends to contract, producing deformities of the lid. The various forms of electric cauterization, as the Oudin, d'Arsonval, desiccation, coagulation, and radio knife have some minor advantages over excision, but none of them are selective in their action. Every one sacrifices a portion of the lid and produces a scar, which may require a future plastic operation to correct.

Working in such close proximity to an invaluable organ as the eye, and having to deal with such thin, delicate tissues, as the lid, which must be preserved in its entirety, in order that it may fulfil its offices of protection, etc., this work calls for the unusual in therapeutics. The average destructive agent, be it knife, caustic or cautery, may have its en-



Nos. 1-3-4.—Three patients with modular ulcerating syphiloderm of the face. A lesion frequently diagnosed lupus and epithelioma. Each of these patients was referred for x-ray or radium therapy. No. 2 was omitted.

Arsenical pastes and acids, along with deep curettements, were employed years ago, and discarded because they had many of the disadvantages of excisions. Heat cauteries of various kinds are difficult to employ, for fear

thusiasts in other fields, but not when dealing with cancer of the eyelid. A method of selective therapeutics is required. We might, as a figure of speech, say that an agent which seeks out the cancer cells is required; one that will dissolve and destroy malignant cells without at the same time permanently damaging the normal cells and tissues of the lid, is what we strive for in these patients.

*Read before the joint meeting of the Radiological, and the Ear, Eye, Nose and Throat Section, of the District Medical Society, April 17, 1925.

Abstract read before the Medical Society of Virginia, Maryland and the District of Columbia, at Warrenton, Virginia, May 21, 1925.

There are but two agents known to the profession which have such an action, x-ray and radium. To secure a cure with either is to leave the patient's lid in almost as perfect a condition as if no neoplasm ever existed. No eversion, ectropia or destruction of the lid substance is produced, nor are such cosmetic results approached with any other therapeutic agent.



Nos. 5-6.—Epithelioma before and after radium therapy.

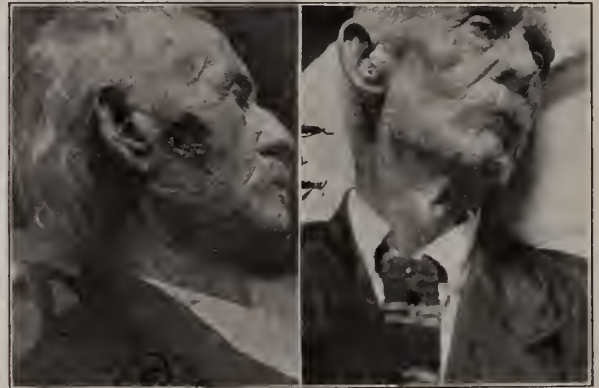
After closely observing the effects of both x-ray and radium for a number of years, it is becoming increasingly apparent to me, that there exists among certain skin lesions a difference in their radio sensitivity. Time and actual experience teach us that while the physics of the two agents may be somewhat similar, there does exist a difference in the biologic and clinical effects of x-ray and radium. For some time dermatologists have been able to



Nos. 7-8.—Epithelioma before and after radium therapy.

demonstrate a difference between the effect of the two agents in leukoplakia, cavernous angioma and lupus erythematoses. MacKee states he has never seen an epithelioma healed by x-ray, after failure of radium, which agrees

with my experience. In an article I published in the *Cutaneous Review*, last year, I cited a number of instances, where epitheliomas, intensively treated with filtered x-ray, in my own and other laboratories, failed to resolute, even after intense skin reactions. In many of these patients I secured prompt destruction and healing of these lesions with a triple strength radium plaque, although the filtration, cutaneous reactions, and duration of the dermatitis, were similar in the two instances.



Nos. 9-10.—Epithelioma before and after x-ray therapy. (1) massive filtered dose; (2) erythemas, 3 mm. filter, 5 mill.

As to the type of the radium applicator, I am sure the flat plaque offers many advantages over the radium pack or needles applied to the surface of the tumors. In the plaque the radium element is covered with a rubber composition which filters out less than 5 per cent of the B-ray. This allows 95 per cent of the soft ray to reach the surface lesion. If one uses a metal capsule or needle containing the radium element, the metal wall of the needle filters out 90 per cent of the very type of ray one wishes to use. If the malignancy is extensive or very deep, the hard G-ray is needed to get a result and here one had better employ the metal walled needles, but for the average lid epithelioma which is diagnosed early, the flat plaque giving off the B-ray is much superior. In addition to this the radium plaque has the advantage of not producing the local traumatism and caustic effects always found at the seat of implantations, of either radium emanation seeds or radium needles. This local injury and caustic action of needles retards convalescence, and produces all the subjective and objective signs of inflammation, which we know by experience is conspicuous for its persistence and irritating character.

The disadvantage of the plaque is that many are being sold which are only half the full strength. Indeed I know of one used in this city which was one-fourth strength. My first



No. 11.—Epithelioma forehead, size silver dollar, healed with one massive dose of filtered x-ray, two erythemas, 3 mm. alum, after failure of twenty fractional doses of x-ray.

applicator used five years ago, was a half strength one, and proved to me that it was entirely too weak to be reliable.



Nos. 12-13.—Epithelioma upper lid, colored patient, rare lesion. Malignancy in this location responds better to strong radium plaque than to x-ray.

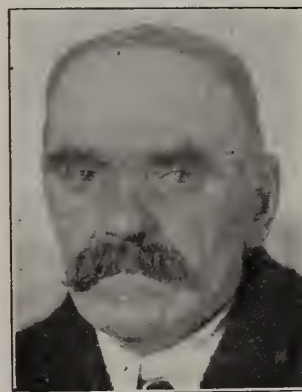
I admit that a demonstration of this difference in radio sensibility of lid epitheliomas may be recent and somewhat original, there being little or no literature on the subject, and that while the relative efficiency may be obscure to some physicians, it does not apply to the convenience in the use of the two methods of treatment. This applies to both patient and physician. The great majority of patients with epitheliomas of the lid are over fifty years old, and many suffer from the infirmities of old age, with its consequent timidity and nervousness. The mere placing of the patient on the operating table and ad-

justing lead rubber and foil over their head and eyes for protection constitutes a trial and hardship for them. To be thus blindfolded



No. 14.—Epithelioma upper lid, result after radium plaque, shows no deformity of lid except alopecia of lashes.

and in the same room with whirling machinery, with its consequent din, and at times sickening sulphur-like odors, is an experience that few care to repeat. Compare this to the adjustment of a small radium plaque, the size of a finger nail, to the lid, with the patient seated in the waiting room, or even his own home with relatives and friends, constitutes a refinement in technique that the old appreciate. The diagnosis of epithelioma of the face and eyelid is most important, and not always easy, as I shall attempt to show.

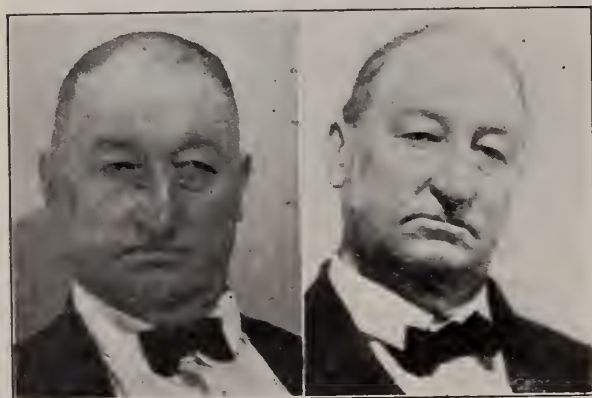


No. 15.—Epithelioma lower lid, results after radium plaque, no deformity or destruction of lid tissue, alopecia lashes of lower lid.

It is quite often most difficult to differentiate this lesion from verruca, lupus and syphilis. To discern the merging of a wart, a molluscum, a chronic granulating wound, or a per-

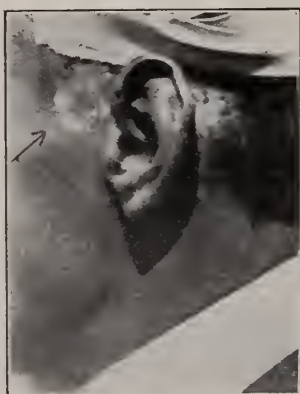
sistent cyst or hordeolum into malignancy, often calls for shrewd judgment and diagnostic skill.

I am a firm believer in correct and early diagnosis in epitheliomas in general and lid malignancy in particular. Experience in a large dermatological or eye clinic is the only place this can be obtained. Text-books will familiarize one with the literature of the subject, but they were never intended to take the place of wholesome, efficient, clinical instruction in the largest American and European



Nos. 16-17.—Epithelioma of nose before and after treatment, radium plaque, 1/10 mm. Al., 3 hour duration.

Clinics. By such instruction one becomes acquainted with the unusual benign lesions which may closely simulate malignancy, and which frequently are exposed to extensive radiation



No. 18.—Epithelioma, prickle cell, developed on lesion of lupus erythematosus. Healed by combination of electro-coagulation and radium plaque, a rare lesion.

with disastrous results. I find many physicians who daily treat syphilis, even specialize on the subject, totally fail to recognize the late and unusual single, grouped, tubercular,

ulcerating, syphilitic, which so closely simulates epithelioma and lupus. So that a familiarity with the benign lesions of the face is quite as important as some knowledge of malignancy and radio-therapy. For one to be uncertain of his diagnosis invites failure, and denotes carelessness of preparation, for what is considered delicate and scientific radio therapy.

I have selected a few of my pictures, which I hope will demonstrate the difference in the response of face and eyelid epitheliomas to radium and x-ray; also other lesions of the face that have been incorrectly diagnosed, a mistake which naturally leads to errors of therapy.

1610 Twentieth Street, Northwest.

CASE OF SITUS TRANSVERSUS.*

By LAWRENCE T. ROYSTER, M. D., University, Va.

E. W., white American boy, seven years old, admitted to the University of Virginia Hospital December 30, 1924, with a diagnosis by the family physician of nephritis.

Family History: Father is well and healthy; is five feet three inches tall, and weighs 125 pounds. Mother is well and healthy. There is no family history of epilepsy, insanity, tuberculosis, dwarfs or deformities on father's or mother's side.

Pregnancies: 1. Girl, twelve years. Well and healthy and normal size.

2. Patient.

3. Miscarriage.

4. Miscarriage.

Past History: Gestation normal. Full term. Labor normal. Birth weight about nine pounds. Nursed one year, then cereals, bread, milk, butter, vegetables, cooked fruits, etc. Was a normal infant. No mouth breathing or snuffles during infancy.

After age of two years he did not gain weight or grow normally, but was normal in other respects.

At age of four and one-half years, he began having epileptiform seizures, described by his mother as preceded by a day of drowsiness and malaise, then a sudden onset of unconsciousness and muscle spasm, when he often vomits, bites the tongue and passes urine and feces involuntarily. This lasts a few minutes, then he becomes relaxed and remains asleep for several hours. Seizures have been occurring about one

*From the Pediatric Department of the University of Virginia Hospital.

per month since onset. Since this time he has had frequency of urination and has to void about every hour during the day, and two or three times at night.

At age of six years, he had measles with no complications. There have been no other childhood diseases.



Present Illness: The onset dates from about December 23, 1924, one week before present admission, when puffiness about the face and eyes was noticed. There were no other symptoms, except frequency of urination as mentioned above.

Physical Examination: The patient is a small, nervous, alert, white boy, seven years old. He is very active and talkative and appears excited. There is no edema of face, feet or hands.

Height—33.5 inches (14.5 inches under average height for his age).

Weight 25.5 pounds (1 pound under average weight for his height).

Symphysis to vertex: 19.5 inches.

Symphysis to sole: 14 inches.

Circumference of head: 19 inches.

Circumference of chest: 19.5 inches.

Head: Somewhat square; brow and parietal bosses fairly prominent. Occipital skull somewhat irregular. Hair abundant, light brown.



Eyes normal. Ears normal. Nose normal. Mouth normal. Teeth sound. Tonsils enlarged, cryptic and anterior pillars adherent.

Neck: No rigidity, tenderness or enlarged glands.

Chest: Well developed, expansion equal. Slight rosary groove, and ribs flare. Lungs normal.

Heart: Apex 6.5 cms. to right of mid-sternal line. Cardiac dullness outlined as in photograph. Some respiratory arrhythmia. No murmurs. The intensity of the pulmonary second sound is greater than the aortic second.

Abdomen: Slightly above level of chest (with patient on back). No masses or tenderness.

Liver: Not palpated. Dullness from costal margin to seventh interspace in mid-axillary line, left side. (Outlined in photograph).

Genitalia normal. Anus normal. Spine normal. Skin normal.

Reflexes: Brudzinski's, Kernig's, contralateral, Babinski's, Gordon's and Oppenheim's are all absent. Cremasteric and abdominal are present. Patellar reflex not elicited.



Laboratory Findings: Urine is pale light yellow color, specific gravity 1010, acid reaction, no sugar, a large trace of albumin, a few hyaline casts and no pus or blood (twenty-four hour specimen used). Daily output varies from twelve to fifteen hundred c.c. The night specimen shows about one-half the amount of albumin as does the day specimen. Kidney function ('phthalein) 45 per cent in two hours. Hemoglobin 85 per cent (Dare). R. B. C. 4,420,000. W. B. C. 10,100. Wassermann negative. Stool examination negative.

Roentgenograms show transposition of heart and liver. After barium meal the stomach is transposed, and the vermiform appendix is on the left side.

The patient remained in this hospital for one week. During this time there was no evidence of epilepsy. His urinary albumin decreased to a slightest possible trace in the twenty-four hour specimen, and no cause could be found for his frequency of urination.

All roads should lead to Richmond for the fifty-sixth annual meeting of the Medical Society of Virginia, October 13-16.

VAGINAL ANUS WITH REPORT OF A CASE. OPERATION. CURED.*

By HENRY WISDOM CAVE, M. D., New York, New York.

Atresia Ani Vaginalis, Anus Vestibularis, Atresia Ani Hymenalis, Vaginal Anus and Vulval Anus are all one and the same congenital malposition of the anal opening. The term Vaginal Anus is the one most commonly used for this condition. As the name implies, it is a developmental defect in the termination of the rectum.

The vaginal anus abnormality is one of the commonest of all congenital defects of the anus and rectum, being rated as 40 per cent of a group of defects where the rectum may open into the urethra, bladder, uterus or vagina. It is generally acknowledged that some type of anorectal malformation occurs in about every five thousand births.

Collins¹ at the Rotunda Hospital in Edinburgh found only one case of vaginal anus in 16,000 obstetrical cases. Winckel² found only a single case of this condition in 12,000 babies at the Dresden Hospital. A large number of cases of this particular type of anal deformity go unrecognized on account of the fact that they are usually accompanied by congenital abnormalities such as atresia of the rectum or atresia elsewhere along the alimentary canal, especially in the first part of the esophagus when the patient dies in the first twenty-four hours

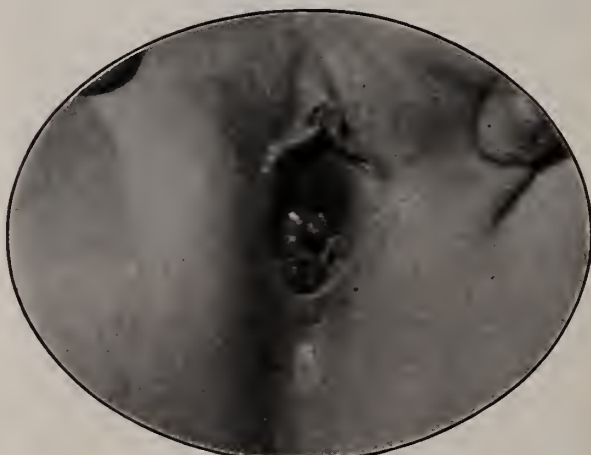


Fig. 1.—The anal opening is seen just below the vaginal opening where the labia majora fuse.

of life. A case of unrecognized vaginal anus is reported occasionally in the literature. Morgagni³ reported the case of a woman who had an abnormal opening of the rectum in the vagina who lived to be one hundred years of

*Read before the Norfolk County Medical Society.

age, and who never knew of her congenital defect. Mondor and G. D'Allaine⁴ recorded the case of a woman of twenty-five years of age with an anal opening at the fourchet who had no discomfort, and who had perfect sphincteric control. No operation was performed. Paschal⁵ reported that a woman with a vaginal anus gave birth to three children. She did not know of her defect, nor did her husband, nor did the accoucher who delivered her on the three occasions. This woman had an anal opening $2\frac{1}{2}$ inches back in the posterior wall of the vagina which was somewhat obliquely placed and slightly to the right of the midline. This anal opening was surrounded by a well-developed sphincter.

There are various other cases found in the literature which have been cured and have resulted in a good sphincteric control following the operative measures taken. However common this condition may be, it seems worth while to report the following case as the only one occurring in the Surgical Services of the Roosevelt Hospital.

History: The patient who was a school girl of eight years of age was admitted to the Medical Service of the Roosevelt Hospital, April 16, 1924, on account of fecal incontinence with occasional nausea and vomiting. The patient had enjoyed general good health until she was three or four except for measles, scarlet fever, and whooping cough; from her fourth to her sixth year she suffered gastro-intestinal upsets with fever, joint pains, and also signs of valvular lesion of the heart. She had been troubled with bowel movements from infancy.

Family History: Her father, mother, and five brothers and sisters are living while three other children died in infancy. The patient was a full term pregnancy, and normally delivered. The patient was transferred from the Medical Service to the Surgical Service on account of a deformity of the anal opening on April 24, 1924.

Physical Examination: She was a well-developed and well-nourished white girl of eight years. Her heart and lungs were normal throughout; abdomen negative.

Surgical Condition: There was no anal opening at the normal site but in its place there was a deep depression of the perineal skin and underlying soft parts. The vulval cleft was normal to superficial examination. The clitoria, labia majora, urethral and va-

ginal openings were normal. In addition to this was the opening of the rectum, separated from that of the vagina by a corrugated septum apparently formed by the joined posterior ends of the labia majora. The hymen was intact. This misplaced opening of the



Fig. 2.—Incision into introitus of vagina circling vaginal anus and extending on back in midline of about region of coccyx.

Fig. 3.—Incision retracted and lower three inches of rectum exposed.

rectum admitted the tip of the little finger. It was more of a transverse slit than a rounded, puckered, anal opening. It was deemed advisable to do a plastic operation on this child's perineum in order to move this deformed rectum backward into its proper position. Therefore on April 30, 1924, the operation was done under drop ether anaesthesia.

Operative Procedure: The patient was placed in the lithotomy position. An incision was begun in the introitus of the vagina going well around and downward to either side of the misplaced anus and extending further down in the midline of the perineum to the region of the tip of the coccyx. The anus was, with great care, dissected from its position in the vagina, extreme precaution being taken to preserve the blood supply of the lower rectum which had to be mobilized. The borders of the levator ani muscles were thoroughly identified and the anus and terminal three inches of rectum were brought downward and backward and the anus sutured with interrupted fine silk to the skin. There seemed to be, in this region toward the coccyx, a rounded muscle superficial to the levator ani muscles which gave one the impression of a poorly developed sphincter ani muscle. With great care this rudimentary sphincter was sutured around the

terminal half inch of the rectum with interrupted sutures of fine chromic catgut. The levators were also sutured together around the lower portion of the terminal rectum in order to be sure that the rectum would have a sphincter action from the levators in case the rudimentary sphincter ani muscle did not properly function. The perineum was carefully built up over the new placed rectum and the vagina sutured. A small rubber tissue drain was placed in the lower portion of the

sphincter with a pouching or dilatation of the lower sigmoid which was apparently compensating as a rectal pouch.

X-ray Report: November 24, 1924. The films showed a moderately dilated rectum normally located. There was a slight dilatation of the sigmoid. Ascending, transverse, and descending colons showed no evidence of dilatations and there was good muscular tone shown throughout the colon.

Late Report: November 24, 1924. Perfect



Fig. 4.—Anal opening with surrounding skin clamped and brought posteriorly to fit into sphincter muscle fibres which are seen at lower angle of wound.

Fig. 5.—Operation completed with tube in rectum, the anal opening having been moved posteriorly about three inches and perineum built up between vaginal opening and rectum.



Fig. 6.—Actual photographs taken in the operating room at the completion of the operation.

perineum just anterior to the rectum. There was practically no tension exerted on the mobilized rectum as it was brought down and sutured into its new position. In fact, there seemed to be a redundancy of the rectum so that we did not anticipate that it would retract and pull upward as the healing took place. The operation was well borne.

Post-Operative Course: The child made an uneventful recovery, its temperature not going higher than 101°. It had to be catheterized the second day after the operation. There persisted a fecal incontinence up to her twenty-fourth day. At this time the child got up out of bed and was allowed to walk around, and she called for the bedpan or went to the toilet whenever she felt her bowels wanted to move. The wound healed very satisfactorily.

X-ray Report: June 10, 1924. Forty-one days following the operation, X-rays of the rectum and large bowel were made. After an injection of barium enema, plates were made to demonstrate the pelvis colon which showed a long narrow channel just proximal to the

control over every defecation.

Pathogenesis: It is in the early stage of fetal development that this rectal and anal abnormality occurs.

Pathology: Brenner⁶ collected ten cases of vaginal anus, four of these being successfully operated upon and six were not operated upon. A perfectly formed sphincteric muscle, in some cases surrounds the anus in its misplaced position in the vagina or a pseudo-sphincteric action results by serrated conformation of the vaginal mucous membrane surrounding the opening. In this latter type of case, a normal sphincter muscle usually undergoes atrophy from disuse if the child is not operated upon during the first three or four years of life. The atrophying sphincter remains in its normal position superficial to the levator ani muscle in the region of the coccyx. In cases where there is a slit-like or partially occluded anus in the vagina, there may be a distinct narrowing of the adjoining rectum which resembles a stricture and it may possess also a pseudo-sphincteric action giving to the fecal movement a certain amount of control. There are a certain number of cases, but they are ex-

ceedingly rare, where the bowel empties directly into the uterus without the presence of rectum or anus. There are also certain groups where there are openings which are present in the sacral region or in certain parts

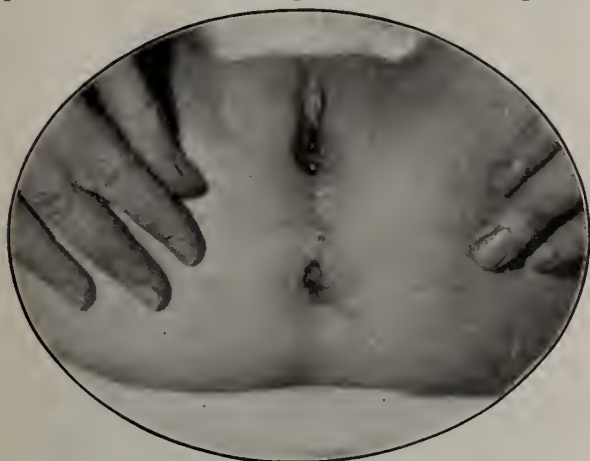


Fig. 7.—Photograph taken six months after operation.

of the perineum which adjoin to the rectum by fistulous tracts. The rectum is usually placed high up in such cases.

Symptoms: If the anal opening in the vagina is a large one, no symptoms are complained of until the child is at an age when it should have control over the bowel movements. If there is no sphincteric muscle surrounding the misplaced anus or if there is no pseudo-sphincteric control, then incontinence is the chief symptom. If there is control of this large opening and no symptoms of obstruction, conception can take place and long life ensue. When the opening is small and slit-like, the first symptoms are those of obstruction. The obstructive signs appear at the time when the feces change from fluid to a solid consistency. The obstructive symptoms gradually increase. A symptom producing tight opening has been benefited by dilatation with fine bougies until the patient has reached a proper age for operation. If there is also a connection between the bladder and rectum as well as a vaginal anus, the symptoms of cystitis and an ascending infection into the kidney may be complained of.

The anal opening may be at the edge of the vagina in the posterior midline or either to the right or to the left side of the midline well back, emptying through the posterior wall of the vagina. The opening itself may be circular in character and of good dimension. It is in this type of opening that fecal incontinence results.

The opening may be slit-like in character. The opening may be long or very short. It is this contracted type of opening wherein obstruction to the normal flow of fecal matter is produced and subsequent distention of the large bowel, nausea and vomiting ensue. The anal malformation is accompanied, as a rule, by malposition of the rectum.

Prognosis: If the operation is performed when obstruction has not developed and a sphincter is either already around the terminal rectum or when it is found in the region of the coccyx and is utilized, a good result is usually always assured within six months to a year. If no definite sphincteric fibers have been found and the levator fibers are utilized, a year to a year and a half may elapse before any normally controlled movements occur. For the most part, the prognosis in all of these



Fig. 8.—Barium enema photograph of rectum and large bowel taken forty-one days following operation, showing pouching of lower sigmoid, which is compensating as rectal pouch.

cases operated upon is good. There is but little shock attending the operation if it is done with great care and all small bleeding vessels attended to. If there is a complicating opening into the urethra or bladder, the anal opening into the vagina, and the patient's resistance is

low due to the presence of cystitis or an ascending kidney infection, the prognosis is not good.

Treatment: The treatment of vaginal anus is for the most part relatively simple. It does not entail complicated operative measures when the opening is in the fourchet. But, if the opening is to either side of the midline or well back in the vagina, it is difficult from a technical standpoint. There are certain principles involved which should not be lost sight of in performing operations on these congenital abnormalities. In the first place, if obstructive symptoms supervene, immediate relief should be given to relieve intestinal tension and also to establish an opening sufficient for an easier passage of the movement by removing the obstruction. If possible, at the same time, it is well to bear in mind that the misplaced anal opening should be moved and placed in the perineum where it is more convenient to the act of defecation. A guiding principle for any operation of this condition is to let the new outlet have complete control to the extent that defecation is voluntary rather than involuntary. Considering any plan of attack, it is well to realize that whatever is done is to be permanent, and that the new opening will not contract to a point of marked constriction as time goes on. Proctoplasty's most favorable time is about the age of nine or ten after the parts have become fairly well-developed and menstruation has not begun. Up until this time dilatation of the partially occluded vaginal anus is sufficient. It is thought by some that children with congenital abnormalities do not stand operations well. However, this does not seem to be the case unless there is a sepsis present. Severe traumatism in children does not produce more shock than it does in adults and a light drop ether is safest. The parts may be cleaned with soap and water, bichlorid, or 3½ per cent iodine. It is well to have had the knowledge of X-ray examinations of the termination and size of the rectum before operation is undertaken. A plug of gauze may be inserted in the anal opening which is usually cleaned by enema and this plug is sewed into the opening with two mattress sutures of silk, to the anal margin, in order to prevent soiling. An incision is made into the introitus of the vagina ¼ inch or preferably ½ inch from the anal margin and if the sphincter muscle is present it should be left intact surrounding

the anus and the incision well outside the border of the muscle. The incision is carried around the anus and backward in the midline to the region of the tip of the coccyx. The anus and terminal two or three inches of the rectum are freed carefully and brought well backward to lie as near as possible to the coccyx in the midline. An important point to remember, is to put the rectum far back for, as the tissue contracts, it has a tendency to tilt forward into the vagina. It is well to note carefully, in making the new bed for the rectum, whether there are any circular muscle fibers in the region of the normal position of the anus; that is, back toward the tip of the coccyx. If these circular fibers which are



Fig. 9.—Barium enema photograph, taken six months, three weeks, following operation, showing a slightly dilated rectum and sigmoid. Good muscle tone shown throughout colon.

really sphincter muscle fibers are left, they may be utilized to form a sphincter for the rectum and assurance of ultimate control. The margin of the anus is sutured to the skin with uninterrupted sutures of fine black silk. The new sphincter fibers are sutured about the terminal half inch of the rectum with fine chromic sutures. Following this the edges of the levator ani muscles are identified and are brought together with chromic catgut as is done in any classical perineoplasty. The peri-

neum is gradually and carefully built up between the vagina and new placed anal opening of the rectum. The suture of the opening in the vagina is done also. A small wrapped rubber tube covered with vaseline is inserted into the rectum. A small tissue drain is placed in the posterior angle of the wound near the region of the coccyx to be removed after twenty-four to thirty-six hours. If the anal opening is to either side of the midline and well back in the posterior wall of the vagina, greater care has to be taken; the operation is more technically difficult, but the same procedure as just described is found satisfactory. If there are complicating fistulous tracts which run from the rectum high up into the bladder or into the urethra, they should be treated at the same time as is ordinarily done for urethro-rectal or vesico-rectal fistulas. The patient should be placed on a continent diet for seven or eight days: on the seventh night post-operatively, an oil should be given by mouth and on the following morning an oil enema should be given to insure the patient of a fairly comfortable bowel movement. The new placed anal margin should be sponged each day and care should be taken that there is no cutting through of any of the sutures. These cuts through sutures make lasting scars in the perineum. After two months' time it is explained to the patients that they must assist in controlling bowel movements. If regular habits are insisted upon, good results may be expected even if no sphincter muscle is present around the anus or is found in the coccyx region: for, if the levator ani muscle is carefully sewn, it sometimes develops a sphincteric action around the rectum and control is the result.

SUMMARY

1. Vaginal anus is one of the commonest of malformations of the rectum and anus. It has been estimated that it occurs in one case out of every 10,000 births.

2. Vaginal anus is due to embryological disturbances of the terminal large bowel during development. The defect begins during the first two months of fetal life.

3. A tight constricted or slit-like vaginal anus often produces distention of the bowel with occasional signs of obstruction. A loose vaginal anus without sphincter muscle about terminal one-half inch of rectum usually gives

incontinence. The proper age for an operation of this kind is about eight to twelve years.

4. The basic principles for this operation ensure (a) an easy and painless outlet for feces, (b) good sphincteric control, (c) and position of outlet well back in region of coccyx in mid-line of perineum.

5. The operative mortality is low and prognosis is good, especially if sphincter muscle is either already around anal opening or is found in region of coccyx.

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HYSTERECTOMY.

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The title of this paper was purposely made vague because it is designed to discuss various questions connected with the subject which can not be grouped except under a very general term. Hysterectomy belongs to the type of operations which might be described as destructive surgery. With such an idea in mind it would be regarded as a thing to be avoided and only to be done as a last resort. However, when it is judiciously employed, it enables us to restore to normal health various groups of cases, and when considered from this aspect it may be regarded as constructive surgery.

Some of the more important pathological conditions in which hysterectomy has to be considered follow:

Cancer of the cervix uteri. The development in the treatment of this condition is quite interesting. It was formerly regarded as one very favorable for surgical treatment, because the uterus was an organ that could be completely removed and therefore its complete removal should have resulted in a cure. It was found, however, that recurrences following operations were very high, and the statement was finally even made that no case of cancer of the cervix had ever been permanently cured by operation. The reason for this re-

currence lies largely in anatomical relations that exist at the cervix. The cervix is suspended by the base of the broad ligament which contains the blood vessels and lymphatics. Extension of cancer occurs along this channel. In performing an ordinary hysterectomy, the point of dissection when the cervix is reached is immediately against the cervix, to avoid injuring important structures, particularly the ureters. When we come so close to the cervix we cut directly through the danger zone and consequently do not make that wide dissection that is indicated in cancer. To avoid this, Wertheim developed the operation that goes by his name, and which consists in removing not only the uterus and adnexa, but in making a wide dissection of the pelvis and removing all of the connective and lymphatic tissue. This operation is theoretically an excellent one, but owing to technical difficulties, the length of time consumed in the operation and the high primary mortality, the operation has never been generally adopted. For the reasons stated, therefore, treatment of cancer of the cervix by operation alone has been rather disappointing.

When we come to consider *cancer of fundus uteri*, we have quite a different proposition to deal with. The cancer being situated some distance from the danger zone in the base of the broad ligament, the removal of the uterus removes the cancer entirely, and in these cases permanent cure results in about 75 per cent. Operation therefore, is undoubtedly the treatment of selection for cancer of the fundus.

In *fibroids of the uterus*, a number of questions present themselves. Owing to the fact that the fibroid tumor is encapsulated and does not invade the uterine structure, it would appear theoretically that myomectomy could be used with a fair degree of frequency, thus preserving the generative organs entire. We are confronted, however, by the disquieting fact that fibroids are essentially multiple tumors, and where one is found we know that the chances are that other minute ones exist even though we may not be able to detect them. It therefore frequently happens that, after a case has been operated by a myomectomy and apparently a very good result has been secured, after an interval of several years the patient finds that another tumor has developed which is giving as much or more trouble than the original tumor. This is a matter of

such frequent occurrence that the desirability of doing a myomectomy at all can be seriously questioned. However, in young women and those particularly anxious to have children, the patient may be willing to incur the risk of subsequent operation rather than to have her organs sacrificed. In the majority of cases of fibroids, it will happen, however, that the distortion of the uterus is so great and the fibroid nodules so numerous that no other operation other than the hysterectomy can be considered.

We have to consider next *chronic pelvic conditions* which occur at or about the menopause. Where such conditions occur in women who are about to have the change of life, they have usually existed for such a long period of time that conservative work is not likely to restore the parts to normal. This is particularly true when we have associated with other conditions the enlarged and boggy uterus which has a tendency to bleed. These cases undoubtedly secure a better result from hysterectomy than from attempts to restore the organs.

We will lastly mention that type of cases which I refer to as *cases of pelvic unbalance*, which apparently are of endocrine origin and which, without distinct pathology, present two striking symptoms, severe painful menstruation and irregularity of menstruation, often with a tendency to hemorrhage. Sometimes such cases are markedly benefited by glandular therapy, but in others they remain rebellious to treatment, whatever may be done. Where this condition has existed over a number of years without benefit from conservative methods of treatment, very remarkable results often follow the ablation of the pelvic organs.

The next general point which I wish to discuss is the effect of hysterectomy on the general well-being of the patient. This subject is one that we should approach with an open mind. I remember quite distinctly that when I performed my first hysterectomies in cases in which they could not be avoided, that I warned my patients of the dire consequences and disagreeable symptoms that would follow the operation, but consoled them with the fact that they would only be temporary. I was very much surprised when I discovered that many of them instead of developing the vicious train of symptoms that I expected, began immediately to improve in health and expressed themselves as feeling better in every way than

they had before the operation. There always occur, of course, the steams and flushes that are incident to the change of life, whether natural or induced.

There are two things which I think must always be considered when we contemplate a hysterectomy. One is the age and experience of the patient; the other, the effect of the ovarian secretion when the uterus has been removed. I think that we should always avoid, if possible mutilating operation in young women, particularly if unmarried. Even if no ill effect followed the operation, the psychic effect of knowing that they are different from other women would certainly have a bad influence. When, however, the woman has been married and had children and is approaching the time when she would have the change of life anyway, we can discuss the case quite philosophically because we have only to consider how best to deal with the pathological conditions present. In other words, after the sexual life of the woman has been satisfied, the induction of the menopause is not followed by untoward symptoms as a rule. This is particularly true if there have existed conditions in the pelvis that have seriously impaired the woman's health, either by pain, bleeding or absorption from a chronic inflammatory condition. Such cases derive so much benefit from the removal of the pathology that the minor symptoms of the menopause are scarcely noted. I have frequently observed such cases who seem to renew their youth following a hysterectomy.

The other point is, what shall we do with the ovaries? Should they be removed with the uterus, or left? Without going too fully into the discussion of this question, I would say that in my experience the best results are secured by removing the ovaries, if the uterus is taken out. If we consider the function of the ovaries, they are, in the first place, trophic, in the second, they secrete ova, and, in the third, they are supposed to have something to do with the sexual instinct. There is also a good deal said about the internal secretion.

We do not have to consider the trophic function in women whose development is complete. Secretion of ova is of no avail after the uterus has been removed. I am not satisfied that the ovaries have a great deal to do with the sexual instinct, and I don't think that is very strong in the majority of women. I do believe, however, that there is a very definite

balance between the function of the ovary and menstruation, the two making a complete cycle. If menstruation is stopped, we have a broken cycle, and under these circumstances the ovaries are more liable to cause disturbance if left than if they are removed. In addition to this, when the ovaries are marooned and not connected with the uterus, they are certainly more liable to undergo degeneration and cause subsequent trouble. I believe that in the majority of cases better results will be secured if the ovaries are removed with the uterus.

The question also arises: Should the cervix be removed with the uterus or left in? I think that the cervix should be removed with the uterus unless the difficulties of its removal are so great as to make the operation hazardous. The technique which I have employed has proven very simple and very satisfactory, but it is not the purpose of this paper to go into technical details.

We have also to consider the prophylactic advantages of hysterectomy in reference to cancer. It has been well established that various pathological conditions in the uterus predispose to malignancy. The lacerated and indurated cervix is certainly more liable to develop carcinoma than the normal cervix, and I believe that cancer is more likely to develop in the fundus of the uterus that is pathological than in the normal uterus. Therefore when we remove the uterus on account of pathology, we are not only removing a diseased organ, but to an extent preventing the woman from developing cancer.

This discussion could not be complete without reference to the result secured in the treatment of cancer and fibroids by radiation, this term embracing the effect both of radium and X-ray exposure. I am too familiar with the good result of this method of treatment, and too enthusiastic over what has been done, to attempt in any way to discredit it. I have felt for some time, however, and have had cases that have borne out my view, that the best results will be secured in cancer of the cervix by combining operation with radiation. Operation is to be undertaken, however, only in the early cases and never attempted after the disease has extended beyond the cervix. If the uterus with the cervix is removed, and the stump treated by radium or X-ray, I believe that we will get the best result. It is more difficult, I am sure, to eradicate the cancer at

its original site than it is to take care of the first cells of invasion. I find that this view is upheld in a recent editorial by William J. Mayo, M. D.

In reference to the treatment of fibroids by radiation, it is undoubtedly true that in selected cases the results secured are very excellent, both as regards the diminution in size of the tumor and the control of bleeding in cases which have this tendency. However, in the very large fibroids and in those which have accompanying pathological conditions that would require operation anyway, it would hardly seem necessary to do both, when an operation only is necessary. I am quite satisfied that as our experience increases we will find that the treatment of fibroids by radiation will only be indicated in a comparatively small group of cases.

Referring to the general subject of hysterectomy, we are forced to conclude that it is an operation of wide applicability; that when done in properly selected cases it will relieve the patient more certainly and permanently than any other treatment; that when it results in restoring the patient to a normal condition of health, so that she may participate in and enjoy the activities of life, it is a constructive procedure; and that as far as our experience has gone at the present time, it is the very best way of dealing with large groups of cases that are daily presenting themselves.

Stuart Circle Hospital.

SOME REMARKS ON DENTAL SEPSIS, WITH ESPECIAL REFERENCE TO CROWN AND BRIDGE WORK.

By CLARENCE PORTER JONES, M. D., F. A. C. S.,
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Dental sepsis is a child of civilization, yet one of its greatest handicaps. Its consideration and proper treatment overshadow every other subject in connection with the art of healing.

Thoma¹ divides the effects of septic teeth on other parts of the body into those which discharge free pus in the mouth and those in which the pus is taken away by direct extension, through the blood stream and lymph stream.

Pus discharged in the mouth bathes the tissues therein, tonsils, and pharynx, and is constantly swallowed. Such a condition needs but to be visualized to comprehend its dire possibilities. It is a known fact that the

swallowing of pus over a period of time causes the gastric juice to lose much of its acidity, thus allowing pus to pass on to the intestines where gall-bladder, appendix, and what not are exposed to a continuous source of danger. By direct extension the antrum is infected through its floor. We believe over half of the nasal sinus infections are ascending; that antrum, ethmoid, frontal and sphenoid become infected in the order named. The position of the head while asleep, as mentioned by Dutrow,² favors invasion of the other sinuses from the antrum. In substantiation of this statement, we all see cases of pan sinusitis which get well rapidly upon removing the dental source and establishing free drainage and aeration of the antrum. Finding the teeth all healthy one rarely sees chronic antritis. The most frequent offender in our observation is the first molar tooth, though other teeth may be the inciting cause. We, as a rule, cannot cure our chronic antrums till the dental error is corrected, another fact which supports the ascending theory. Were the antrum a cavity favorable to drainage and aeration the dental correction would usually be all that would be required.

Skullern³ says, "The infection may start as a chronic disease as, for instance, in maxillary empyema of dental origin, where the continued slight infection from the minute fistula in the carious tooth slowly and gradually spreads out into the floor of the antrum, until finally the entire cavity is involved. The process, from its very inception, has been essentially of a slow and chronic nature, at least as far as the symptoms were concerned."

The more important consideration is those cases where the infection is taken away by the blood stream and lymph stream. Depression, physical and mental, easy fatigue, diminished power of concentration, sleepiness, loss of weight and toxemia result. In fact, there is no end to the train of symptoms. Every physician and dentist is aware of Rosenow's work in the study of nephritis caused by dental sepsis. Really, the possibilities of harm done by pus let loose in the blood stream are unlimited.

So much for a survey of the subject of dental sepsis. We now come to the consideration of crown and bridge work. Being ignorant of dental terms, we therefore speak in our own

language. We give the following reasons why crowns add to the difficulty:

1. Crowning an infected root is like building a house on a faulty foundation.

2. Working on an infected root causes irritation and thereby increases the infection.

3. The crown gives the root more work to do, which means an enlarged infected area.

4. Building an infected root up with a crown puts more pressure on the root and the infected area, causing pus to go directly into the blood stream.

5. A patient having paid a more or less expensive sum to have a root crowned, later discovering it to be infected, will hesitate the more to have it extracted, although he knows it is infected.

6. Crowning infected roots is simply making more work for dentists and physicians who recognize the importance of oral infection.

In addition, the following may be said of bridges:

1. There is difficulty in cleaning all recesses and nooks.

2. The swinging or "swayback" bridge irritates the gums, often causing a "sea" of pus.

3. The insecure or "rocking" bridge, for obvious reasons, is unsanitary.

We wish emphatically to protest against the habit among some dentists of putting gold crowns on healthy teeth for gaudy show, demanded by foolish people, which is a source of pride to them like the tattoo on the feeble-minded sailor. The latter does no harm; the former is fraught with danger by cutting off air from the tooth surface, harboring infection, and by its edges irritating and often infecting the gums. Money made by this pernicious practice will choke the conscience in the declining years of life like the gambler's ill-gotten gain. The plea that "if I don't, some one else will" is shopworn. It was formerly used by the bartender to justify himself in selling liquor to the moral weakling.

Our case records illustrate many of the various phases of crown and bridge sepsis. That it aggravates other infection is clearly proven by the following:

Mr. H., 52 years old, had syphilitic iritis (positive Wassermann), severe pain day and night. Atropine three per cent, failed to dilate the pupils; iris was fused to the lens capsule as it were. This continued for twelve days, till extraction of two crowned teeth caused a rapid

dilatation of the iris, with complete relief from pain.

Mrs. R., 40 years old, a diabetic, had a troublous corneal ulcer, which refused to heal, in spite of three weeks' treatment. The removal of a septic broken bridge caused rapid healing of the ulcer.

Mrs. C., 46 years old, chronic tuberculosis, suffered from severe facial neuralgia for many weeks, received instant relief after removing a swayback bridge.

These cases also show the injustice which it would be possible to show the sufferer from syphilis, tuberculosis, diabetes, etc., by shrugging our shoulders, without looking further for the source which may be doing the greatest harm for the time being at least.

That blindness can be caused, the following will illustrate:

Mr. C., mechanic, 39 years old, noticed his left eye blind. He could scarcely count fingers. He immediately reported for examination. The ophthalmoscope revealed no pathology. Removal of two bridges which were in contact with gums covered with granulation tissue caused a return of vision in four days. This occurred three years ago. There has been no return of blindness.

Mrs. M., 52 years old, noticed "butterflies" before her left eye, also very little vision, 10/200. Extraction of a crowned canine tooth on the same side caused the "butterflies" to disappear and the vision to be normal in five weeks. This tooth was painful at times for some months before. It was crowned just twenty days before she noticed the condition. The roentgenogram revealed a granuloma at its apex.

Otalgia from dental causes is so prevalent that we confidently expect to find a septic tooth, often a crowned tooth, in every case where there are no objective ear symptoms. Cases of this nature, we have had by the hundreds.

Rheumatism and arthritis caused by dental sepsis are so familiar to every physician and dentist they need be mentioned merely in passing. One very spectacular case we will cite.

Mrs. C., 23 years old, had severe arthritic pains in both wrists in 1903. Removal of a long crown over a molar tooth which tightly impinged the gums caused a magic cure. Three years later severe pains in right shoulder, coming on about two A. M., lasting till the

middle of the afternoon, were relieved upon removing a badly fitting bridge from the same side, lower jaw.

In 1911 she had lumbago, which disappeared upon the extraction of a crowned tooth. In 1922 she had a bridge put back, swinging from the same teeth which supported the badly fitting bridge removed in 1906. In a month she became sick from gall-bladder infection and various attacks of rheumatism; in fact, she was an invalid for more than a year. She had moved and was now the patient of a severely conservative dentist who made every endeavor for her retention of the "pretty bridge." But the bridge was finally removed and both teeth extracted. In two weeks she was well and is at this time quite free from any symptoms. She is not at all enthusiastic about handsome crowns and bridges.

Extreme mental and physical depression is often an outstanding symptom of dental sepsis, aggravated always if the offending tooth be crowned.

We have more than a score of such cases among our records. For the sake of brevity, we will mention two:

T. B., 59 years old, a laborer. About two years ago began to have a spell of mental and physical depression each afternoon, with a feeling that something was going to happen to his family. This depression was attended for a short period of time by a feebleness that prevented his ascending the stairs unassisted. The roentgenograms revealed cloudy antrums and four infected teeth, all having been crowned for "gaudy show" some fifteen years previously. The antrums were opened and found to contain a mucous fluid. No improvement followed treatment. The urine contained albumin over twenty per cent by volume. Extraction of the teeth was followed the next day by deep coma, which lasted for thirty-six hours, then recovery, the urine being albumin free in four weeks. He has continued well.

Mrs. C., 37 years old. Had mental and physical depression, coming on early each morning and lasting well into the day. A thorough physical examination failed to disclose anything except a swayback bridge, which was buried into the gums. Nothing was done for her except the removal of this bridge. There was a prompt cessation of these spells. Six months have passed. Since

the removal of the bridge, she has continued well.

We think there is no further need to mention other cases, but we will say that we are not in a position to decide just what teeth should be crowned. We content ourselves by asserting that it is our soul's deepest conviction, that no tooth with an infected root should be crowned. We feel that the dentist should exhaust all means of diagnosis, together with a thorough X-ray study, when there is the slightest doubt in the premises, before a crown is put on any tooth, and no swayback, rocking or insecure bridge should be put on any tooth.

Having been misunderstood by our fellow physicians and dentists for our persistence, yet we feel that if we have done anything, however small, to protest against the hundreds and thousands of sudden deaths during the middle period of life, which were indirectly caused by dental sepsis, if we can do a small bit to hasten the day when physicians and dentists will think more clearly on prevention of oral sepsis, and at least give as much thought to this vital question as they give to golf and sports, our labors and agitation will not have been in vain.

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SOME SOLVED AND UNSOLVED PROBLEMS OF INTERNAL MEDICINE.*

By ALEXANDER G. BROWN, Jr., M. D., Richmond, Va.

It is a privilege to speak to this companion group of specialists on "some solved and unsolved problems of internal medicine." The privilege is appreciated. The opportunity, which one medical group gives another, to hear of the problems peculiar to its own, but necessarily directly or indirectly related to other fields, is a privilege fraught with a mutual benefit. In attempting to present some of the problems of internal medicine to you I shall take great liberty with fact and scientific discussion. For I conceive the benefits of such an opportunity as I enjoy tonight, in speaking to you, to lie in popularized presentation of our problems (solved and unsolved in internal medicine) rather than a highly technical dis-

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cussion. So I shall endeavor to avoid highly technical phrases of discussion in medicine. Were you presenting to internists the problems of your specialized work the same method of communication would be appreciated. So, many of my comments may be opened to some question when the term "solved problems" is applied. Problems of disease are really difficult of solution. So when we use this term we speak relatively.

For generations on end scientific medicine made few advances. Through the ages disease spread its direful blight over the human race. Races of men and nations of the earth met untimely death through the ravages of contagious diseases. Epidemic after epidemic spent itself in the human family, through the generations of men, unimpeded, unsolved, unstudied. Millions of men, women and children suffered and died as a result of the unsolved problems of infectious diseases. Contagious diseases, unopposed, except by the natural laws of resistance and immunity, inherent as the laws of physical world, ravaged man through the centuries, increasing, doubtless, their ferocity and devastation as civilizing tendency to community life increased.

It was only in the 18th century, long years after, that epochal victories were achieved against these hosts of the invisible world of disease.

Now, as solved problems in medicine are well illustrated by this group of world-wide and history-worn diseases, we may, for a moment, cite in detail a few that appear to be "solved" from the standpoint of prevention, if not cure. I call your attention to smallpox, diphtheria, typhoid fever, and, now, scarlet fever. These serve as prominent illustrations of the greatness and power of the forces of modern scientific medicine.

To smallpox, then, we may for a moment briefly point in detail. Smallpox was first described by an Arabian physician, Rhazes, in the 9th century, but it is believed that it was recognized and described as a disease by Galen as early as 130-200 A. D. under the term *pesta magna*. For centuries before Christ such a disease prevailed in China in epidemic form. In the 6th century it prevailed in very devastating form. Bernoulli states that in the 18th century sixty million people died of smallpox in Europe. In Russia, at the time that Disdale went from England to inoculate

Empress Catherine, 2,000,000 deaths occurred in that epidemic. In 1707 an epidemic in Iceland resulted in 18,000 deaths out of a population of 50,000 inhabitants. In 1796 Junaker said that 400,000 lives were lost yearly in Europe by smallpox. The disease entered America by Mexico through Spaniards in 1520 and has been observed in various epidemics on this continent since that time. At the age of nineteen years, George Washington, forty-five years before the discovery of a preventive by a medical man, contracted smallpox when on a visit to his brother Lawrence in the Barbadoes. During the civil war there were recorded 4,914 deaths from smallpox. In the early seventies, and at various times since, smallpox has appeared with more or less frequency and virulence.

The epochal step in the solution of this great internal medical problem was taken when Dr. Edward Jenner, on May 14, 1796, vaccinated the boy, James Phipps, with matter from kine pock, from the hand of a dairy maid, Sarah Nelms, and on July 1 introduced into this boy pus from a smallpox pustule without effect (Tyson). In June, 1798, Dr. Jenner published a paper: "An Inquiry into the Causes and Effects of the Variolae Vaccinae." Within two years vaccination became general over the continent. On July 8, 1800, Dr. Ben Waterhouse, Professor of Physics at Harvard University, vaccinated his own children. President Thomas Jefferson encouraged its use in the United States. In spite of the first step in solving this great human medical problem by vaccination, there remains the unsolved problem of its etiology. But we wish to affirm that vaccination for the prevention of smallpox, which has menaced the human race through the ages, is one of the solved problems in preventive medicine. Smallpox today in any civilized country is a disgrace, although our own country in the northwest and the far west, still records an high incidence of the disease.

Diphtheria, an acute contagious inflammation of the mucous membrane (or skin), usually oral, faucial, nasal, laryngeal, tracheal or bronchial, due to implantation and proliferation of Klebs-Loeffler bacillus, has prevailed, endemically and epidemically, in the human family since the days of Hippocrates in 406 B. C. A disease, however, resembling it was described by an East Indian physician, Dr. Hanvanture, about 500 B. C. A century

before Christ, Asclepiades performed the first tracheotomy for the relief of a patient suffering with diphtheria.

Aretaeus (100 A. D.) in 1st century and Galen in 2nd century left descriptions of the disease. The disease appeared in America in the 17th century. In 1771 there was widespread epidemic in New York. From that time epidemic on epidemic has occurred in this country. Widespread devastation was wrought in children until the introduction of the well known diphtheria antitoxin. This potent remedy, when injected early in the disease, quickly brought the appalling mortality to almost nil.

For the past twenty years or more, this remarkable agent has been accessible and has been applied everywhere. To this achievement has now, within a few years, been added the "Schick Test." Then, comes the immunizing toxin-antitoxin.

These scientific discoveries (the antitoxin, the Schick test and toxin-antitoxin) place diphtheria in the catalogue of diseases of which the problem has been solved.

Again, typhoid fever, an acute infectious disease, due to the implantation and proliferation of the bacillus of Eberth, is coeval, probably, with civilization itself. It has been described in terms easily recognized by Hippocrates (B. C. 460-357) and Galen (A. D. 130-200). On down the centuries innumerable writers have discussed the cause, course, incidence and treatment of this ubiquitous disease of man. The long toll of death that its contagion has wrought in the human race is incalculable. The knowledge of its mode of propagation and the discovery of a vaccine have about wiped the dread disease from the face of the earth, in any large proportion. Whereas in the ranks of armies and camps, typhoid fever was always a menace and deadly probability, now hygienic measures, followed in the care of food and drink, and the application of compulsory typhoid vaccination by hypodermic injection of killed bacilli in measured amounts at stated intervals, has all but eradicated this disease. This may be said to be another great feat in medicine; this accomplishment is a solution of the disease problem.

To this I must add another example. The last, to which I shall point, comes as of yesterday. You may say it is not a fair example. If not, before I mention it, I shall,

to make the original point a bit stronger say that yellow fever epidemics are no more, because of Walter Reed and his co-worker; that malaria is under control; that pulmonary tuberculosis is fast falling in the mortality column.

But the last great medical disease that is all but solved is scarlet fever. Here internal medicine enters the lists against the invincible and malignant streptococcus.

Stalking with its red flag of death among the children of the world, scarlet fever has baffled scientists of all ages. Despite modern knowledge of hygiene and sanitation, its direful trail of complications of deafness, blindness, rheumatism, heart and kidney disease is found among the children of the world today. So, from the pestilence of Thebes in 600 B. C. and the plague of Athens in 430 B. C. down to the 17th century, when Sydenham described its classical symptoms, as we recognize it today, in the old world everywhere and in epidemic form in this country now, scarlet fever, with more or less mortality, but with fearful sequelae, has continued to afflict childhood and has up to yesterday withstood every attempt to discover its etiologic factor or its successful treatment. It seems scarcely possible that it can be the good fortune of our generation to witness another astounding accomplishment of medical science. But it is true that through the indefatigable and indomitable scientific work of Drs. George and Gladys Dick (his wife), almost singlehanded, the "Dick test" for scarlet fever was evolved, after essaying innumerable experiments in the baffling domain of streptococcus immunity. The story of this remarkable "look in" upon this redoubtable germ and its subtle presence in the human, is full of dramatic interest. The field to which the Dicks bent their efforts was a "no man's land" in science; although for several generations scientific workers have been making numerous efforts to discover the secrets of this disease-organism, it remained for the Dicks to discover the identity of the hemolytic streptococcus as the cause of scarlet fever. Following this, a long chapter of self-sacrifice and scientific effort was necessary to produce scarlet fever experimentally. This was accomplished by them in October, 1923. Having accomplished this, the next step followed. The Dick test was evolved. With this highly diluted

toxin injected between the layers of the skin, it was found to be possible to determine whether or not the person so injected was susceptible to the disease. Susceptible children can be found out by the Dick test and by the Dick antitoxin be immunized. And now comes the announcement from a reliable firm that the scarlet fever streptococcus antitoxin (Lilly) has been made available through license by the United States Treasury Department for interstate sale. While things remain to be done in the perfection of treatment and prevention, one may safely say, while we take off our hats to the Dicks, that another age-long disease has been conquered and its baffling problem solved.

It seems then that some of the national and world-wide problems of disease and public health problems have been solved. This epochal success in ferreting out the cause and discovering the methods of eradication of disease distinguishes this century above all the ages of the past. For this we men in medicine must entertain the highest interest and appreciation and, in such a spirit, encourage and aid all efforts made by boards of health through our country and in our state and city in erecting every safeguard against increase of disease.

But, our problems in medicine are more individual—both as to disease and as to patients. So, let us turn to some of these problems that are crossing our path in daily work and briefly comment upon some of them. It augurs well for disease that dentistry and medicine in these later days are finding problems of mutual interest in the daily routine of work. Besides this, it augurs well, in the general trend of medical knowledge, that the multiplied ends of medical diseases, are being gathered together into, at least, more simple generalization.

Focal infection, embracing the idea of a primary portal of infection, is a place from which bacteria invade secondary places in the body. The focus may be acute, as is observed in tonsillitis, and secondary as in articular rheumatism: the primary focus may be chronic, and apparently symptomless in its initial area, while in the secondary field of its manifestation, emphatic symptoms, acute and chronic, may appear. To Billings, and a group of workers at Rush Medical College, is due the credit of emphasizing this important primary and secondary relationship. Focal infections

of the mouth no longer belong expressly to the domain of the special workers in that organ. This orifice and its structures serve as a port of entrance, and the harbor of implantation. From this primary focus, by the blood stream and by the lymphatics, bacteria go to secondary places in the body. The mouth, pharynx, nares, accessory sinuses, middle ear, and mastoid cells, the tonsils, teeth and structures that make up surrounding organs, serve as a chief site of primary infection. Although in cataloging other places of possible primary infection, one may cite the trachea or bronchi: ulcers of oesophagus, stomach, duodenum: gall-bladder, common duct, appendix and rectum, genito-urinary tract, male and female, and cutaneous infections; puncture wounds and the like. The pathogenic organisms operating in this fashion may be summarily stated as streptococci (*s. hemolyticus*, *s. viridans*, *s. rheumaticus*, *s. mucosus* and other strains): micrococcus catarrhalis, pneumococci, bacillus mucosus capsulatus, staphylococci (*aureus* and *albus*), meningococci, tubercle bacilli, colon bacilli, gonococci, spirochaeta pallida, endamoeba buccalis, fusiform bacilli, Welch's bacilli, diphtheria bacilli, tetanus bacilli and others.

The route by which primary infection travels to sites of secondary implantation may be by blood streams or by lymphatic currents. By way of blood, the micro-organisms, after breaking down local resistance and invading local capillaries, pass along this route in the form of small emboli, or as bacteria to certain tissues of affinity or selection in the general system and, there, implant a bacterial growth that, may or may not, set up secondary symptoms, acutely or slowly, according to virulence of the organisms, the multiplicity of the implanted germ, or the resistance of the secondary tissues attacked. Likewise, by way of lymphatics, micro-organisms, breaking through barriers of first line resistance, establish in adjacent lymph nodes as secondary growths. These lymph nodes serve as an intermediate means of implanting secondary, or systemic areas of infection, at distant regions in the body. Hypothetical or not, as this may be, the fact remains that no longer can there be any reason for scientific doubt, as to the cause and effect relation which exists between "focal infections" and certain definite systemic

affections. This general discovery of disease manifestation has opened up a new field that has made the science and art of internal medicine a department of knowledge alive with new possibilities and new hopes.

Let us turn briefly to note some of the more common diseases which may have a primary origin in focal infections. I call your attention, in the first place, to tonsillitis-acute articular rheumatism, or rheumatic fever, a hyphenated disease association. The relation of tonsillitis to rheumatic fever has been recognized for years. It was called a complication; articular rheumatism coming after an attack of tonsillitis. Now we know the focus of infection in the tonsils is caused by the organism that also produces articular rheumatism.

Rosenow has shown that the organism, streptococcus rheumaticus, may be obtained and artificially cultivated from foci of infection in the tonsils, also from alveolar abscess, infected sinuses, abscesses involving the fingers and toes, infected lymph nodes. He has also cultivated this organism from the stools, urine, blood and joint exudates of patients with rheumatic fever. Acute faucial tonsillitis is a frequent associate of acute rheumatic fever; chronic tonsillitis, with or without symptoms, is most often the cause of chronic rheumatic arthritis. I need not amplify this; we recognize the relationship.

The same factors obtained in relation to acute and chronic infections of the oral cavity and the heart and blood-vessels. During the course of acute tonsillitis or acute abscesses of the teeth or accessory sinuses, the internist may wisely keep a keen ear for signs and symptoms of endocarditis. The malignant streptococcus, by necrosis and destruction of tissue in the mouth, at the site of the abscess, invades small blood vessels in adjacent fields, and, by blood culture and migration, passes to the place of choice in the endocardium. Upon the fringe of the mitral valve is set up a secondary inflammation and necrosis of tissue. Thus, we have the endocarditis of childhood and youth. Malignant ulcerative endocarditis occurs in this manner. The blood stream becomes infected with "streps"; the emboli lodge here and there in the body; the blood cells undergo destruction and hemolytic spots stain the skin. What may not be the train of complicating diseases in such a state of bac-

teremia? Myocarditis or degeneration of the heart muscle-wall may logically occur; for may not the coronary field of blood vessels receive early the first invading organisms as they leave the left ventricle, or may they not travel by the lymphatics directly into the heart muscle? By embolic invasion of the brain, setting up reactions in the tissues there, the same process of implantation may produce chorea which so often occurs in this condition of oral infection. Besides we internists frequently note in oral foci a tendency to goitre (or more properly thyroiditis in young girls especially). In rheumatic fever this is noted in 50 per cent to 80 per cent of cases. In the more chronic infection of the tonsils and jaw bones, goitre is common; and we believe there is a cause and effect relation often. So, also, we observe in these cases erythema nodosum and herpes zoster.

In the chronic focal infections of the teeth and jaw bones, as well as of the tonsils (although tonsillar infection in advanced life is not so frequent, by far, as alveolar infection) we now recognize definite chronic systemic affections which are equally slow and insidious in their pathologic changes and symptomatic manifestations, as in the original focus. These oral infections appear in chronic arthritis, or joint disease, and in serious heart disease. The joint changes we will pass over, but point out the malignant effect upon the heart, as this is not so apparent, either to the patient, the family, or the doctor. As this pathology comes in the 5th, 6th or 7th decade, there is associated various complicating changes of advancing age. This only makes the significance of oral infection more serious. The most serious of the heart changes is that due to streptococcus viridans, producing endocarditis lueta or subacute infective endocarditis. In the early stages the symptoms are mild; the patient is about, but not well, tired and not able to endure physical exercise without distress, general debility, loss of weight, slight chilliness, and night sweats. From this train of symptoms fatal endocarditis and heart failure will ensue in the course of eighteen months. Death may be sudden or may come after a lingering illness. The most usual source of streptococcus viridans bacteremia, according to Billings, is pyorrhea alveolaris. Again, let me point out another hyphenated disease complex; focal in-

fection, acute appendicitis. Focal infection—bacteremia, and acute infection of the vermiform appendix has been shown by the work of Rosenow and others. The invading micro-organism, traveling by way of the blood stream, reaches the appendix and lodges in the small vessels of the wall of that vestige of intestine and there sets up an inflammatory process. The virulence of the infection and the pathology resulting depend upon a number of factors which we will not need to enumerate. The same relationship exists between focal infections of the mouth (and elsewhere) and that other commonly infected viscus of the alimentary tract, the gall-bladder. We all remember, twenty years ago, when it was clinically an axiom to say that typhoid and gall tract infection were commonly associated, as cause and effect. So, we can now say, based upon the work of Rosenow and others, that focal infections, such as tonsillitis and alveolar abscesses, and other accessory sinuses, give rise to the source of strains of streptococcus that selectively proceed to the small blood vessels in the mucosa of the bile tract, notably the gall-bladder and there set up inflammation and symptoms of cholecystitis. Not to labor the point, I should like to briefly point out that gastric ulcer, duodenal ulcer, acute pancreatitis, acute osteomyelitis, chronic infective arthritis, glomerulonephritis, muscular rheumatism and chronic neuritis, are a few of the general diseases met with in the practice of internal medicine which have primary origin, and, it may be, sustained existence, in chronic focal infections, very often located in or about the mouth.

To have established this important fact in the development of these well known and most common diseases is to have solved a large part of a great medical problem, both from the standpoint of prevention and the cure of these systemic maladies. Hence, tonight, we may feel that our mutual interests in these diseases, partially solved, are deeply interrelated, and that the establishment of this relationship will be the forerunner of better work in general medicine, as well as in the various specialties.

No summary of the problems of medicine can omit syphilis. This widespread infection of the human race has for ages entered into all medical problems. I shall not go into a statement of reasons for this. It is too apparent. But

we must, although briefly, comment upon this disease in connection with one of the solved problems. If it is not solved, epochal discoveries have made the problem susceptible of solution, in part. Incidence of this malady is widespread; it affects your work in the mouth; it affects my work in internal medicine from many angles. Can you really believe it has been only within twenty years that the cause of syphilis was discovered? In May, 1905, Schaudinn and Hoffman announced the discovery of *spirochaeta pallidum*, the causal agent of syphilis. For ages the cause was unknown. Noguchi, in 1911 first grew the organism in pure culture. And, now, the trend of belief is, based on the work of Nichols and Reasoner, that there are several strains with characteristics sufficiently distinct to furnish means for differentiation. On this hypothesis, is based the hope of establishing the predisposition of certain syphilitic infections for certain systems of the body such as visceral syphilis, vascular syphilis and syphilis of the nervous system. This was an important discovery. I shall not attempt to describe the well-known features or symptoms, from the primary lesion, through the secondary manifestations in the skin, and on through the tertiary stage of destructive pathology, which may pass from one generation to another. Particularly, I might mention the blight of syphilis in the oral cavity, where much of your work is done. The most important and frequent lesion of the mouth is the mucous patch or erosive syphilis, seen on the soft palate, the tonsil, the tongue, and the buccal mucosa. At the angle of the mouth it may cause a deep fissure. It occurs in first and second year after infection. The late manifestations of syphilis of the mouth are nodular or gummatous lesions. Gummata may be seen in the bone and periosteum. Teeth changes of congenital syphilis need no comment. Oftentimes, workers in your field first have opportunity to think of the use of the next great discovery in the history of the disease, and one of the greatest human accomplishments in medical science, the Wassermann test. The appearance of some blight of the mouth may be the first opportunity presented for the medical man to get a "look in" on this disease.

While the early diagnosis of syphilis may be obtained by the demonstration of the specific organism by the means of the dark field illumi-

nation, or staining of tissue sections, the Wassermann complement fixation test is the diagnostic test of importance in later periods. Upon this, the medical diagnostician relies, not alone, but in part. The "Wassermann" of the blood and spinal fluid is to be sought in all cases of suspected syphilis. The next advance in this disease, leaving out consideration its prophylaxis, is its treatment. In this field another important problem has met with solution, at least, in part. The discovery of "606" or arsphenamin by Ehrlich was remarkable and marked a new era in the treatment of syphilis. Salvarsan, the trade name, was first employed therapeutically on a large scale in 1910. A review of the past fifteen years of the effect of arsenical therapy on the cure of syphilis, while falling short of some of the brilliance of its first promises, is today, beyond doubt, the most effective method of treating syphilis. The refinement of the many preparations, as we have them today, combined with the use of mercury, enables one, by intravenous administration, to abort or cure syphilis better, now, than at any previous period of man's knowledge of the dreadful disease. And, in leaving this disease, my last word to you may properly be, to look out for the congenital defects of syphilis as found in the teeth and mouth, and as associated in the eyes, the bones, the skin and mucous membranes.

I cannot refrain, in this connection also, from commenting upon malaria. The development of our knowledge of malaria is one of the most brilliant feats of internal medicine. It had a devastating effect among Egyptians along the lowgrounds of the Nile; it affected the ancient Romans who lived about the marshes of Rome with relentless recurrence; it prevented the development of our own South for generations; and it stood as an implacable barrier against the successful opening of the Panama canal. Malaria is today, however, well in hand as a medical problem. In 1880, Laveran discovered in blood cells the plasmodium malaria. In 1898, Ross discovered that the organism was transmitted from man to man by certain species of mosquitoes, and that this was the only way. In 1912, Bass and Johns successfully cultivated the malarial parasite. The pathology of the disease embraces its destructive effects upon and in the red blood cells, the marked changes in the liver,

spleen, kidneys and brain, not to mention numerous other processes of pathology elsewhere.

The destruction of the mosquitoes transmitting the malaria is accepted as the ideal way of preventing and blotting out the propagation of the disease. The study of methods of destruction of the breeding places, the protection of man from the bite of mosquitoes, and the destruction of malarial plasmodium in man, constitute the chief items in the problem of prevention. So, the treatment of the problem embraces a wide field of effort, touching the problem of engineering, house screening and quinine administration. On these three depend the solution of this problem.

Just here, parenthetically, let me say that the literature of today is filled with the suggestion that the injection of malarial parasites into nervo-syphilitics, or paretics, offers the best chance for cure of this malady. This needs further study.

As the mouth is your field of work, it seems quite appropriate to outline a few of the problems connected with alimentary tract. The teeth, physiologically in mastication, perform the first acts of digestion. The gross food products, used in adult life, are bitten off, masticated and caused to be more or less saturated with salivary secretion during their excursion through the mouth. The hypersensitive touch-sense of the nerves of the mouth, enables that organ to determine the degree of mastication needed. The action of the saliva acts to dissolve food constituents, to partly digest starch, to soften the mass, and to coat the mass with mucus so as to enable it to pass more easily through the oesophagus. The teeth and the secretion of saliva glands enter thus into the beginning of digestion in an important way. So, into the stomach partially digested food is received. In this organ some new problems have recently come to the forefront. Whereas much was thought of the secretory function of the stomach, now we give to its motor function a position of greater importance.

The control of the emptying of the stomach through the pyloric sphincter has been recently recognized and these important physiologic facts have been noted: (1) when carbohydrate food is fed, it ordinarily leaves the stomach fairly rapidly; (2) Proteins ordinarily leave

the stomach more slowly than carbohydrates. This has considerable bearing on the acid control of the pyloric sphincter and enters into the treatment of pathological states of the stomach. In connection with these new physiologic studies, we recently, by the use of the duodenal tube, made studies of the duodenal secretion. We have been using the duodenal tube for bile tract lavage and drainage. This is done by the Lyon method, which consists in introducing a duodenal tube into an empty stomach and directing the patient to lie on the right side until the reaction of the fluid returning through the tube is alkaline. When this is obtained, two ounces of saturated solution of magnesium sulphate is introduced. This, by the law of Meltzer, permits the magnesium sulphate to enter the common duct and the gall-bladder, and stimulates the evacuation of these tracts. This, as roughly described, enables one to lavage the common duct and gall-bladder. Such a course of treatment in cases showing evidences of cholecystitis, cholangitis, or duodenitis is meeting with no inconsiderable success. This success depends upon its application in properly selected cases. It is no cure for gall-stones or for any serious or advanced pathologic processes.

Let me bring this too long discussion to a close by pointing out the great advance that has been made in diabetes and in the use of insulin. This enters into your work because diabetes is on the increase in this country, as shown by the statistics of Joslin. In diabetes the teeth, gums, and general oral hygiene are important considerations. In diabetes, with the high blood sugar in all tissues, with insufficient vitality in the tissues from a lack of combustion, the gums and pericementum form a culture ground for bacteria. Oral sepsis is an early result. The salivary glands, also, soon fail to function. This adds to the unhygienic state in mouth and so pyorrhea, caries and abscesses, with many other pathologic factors, appear. All this, I am glad to say, insulin can improve, assisted by a proper dietary measure. Likewise, in all surgery, not only in dental but also by general surgery, in cases of diabetes, insulin, properly administered, with blood sugar studies as a guide, is a potent and remarkable remedy.

So we may say that the discovery of insulin is a partial solution of a great medical disease

problem. But one must remember that it is not a cure. However, the discovery of insulin forms a chapter of thrilling accomplishments in internal medicine. It is no longer in the experimental stage. It is a proven agent of value.

Now, as you know, the number of obese people in this starch or candy eating age, to say nothing of soft drinks together with sedentary habits, is on the increase.

Overtaxing the pancreatic function or the degeneration of the islets of Langerhans from chronic infection by way of the common duct, produces impairment of function of the internal secretion of pancreas. As a result, the blood sugar is not burned in the tissue. The blood sugar is increased to a high state of saturation. The kidney is the route of sugar loss. The patient presents all the classical symptoms of diabetes, increased thirst, increased appetite, increased urine secretion, possible loss of weight and strength and a multitude of disturbing symptoms in mouth, skin, muscular and nervous system. The condition may progress to acidosis and coma.

Banting, in 1921, found that he could produce usable insulin from the pancreas of the foetal calf. With this he was able to reduce the artificially-made diabetic rabbits to normal blood sugar by injection of insulin. Through a series of experiments the use of it was made possible in man. It has become of great use in diabetic cases. I am not at all sure that high blood sugar in your work may not need controlling often. Insulin is dangerous, however, and should not be used by one not familiar with diabetes and its problems.

Now, let us turn briefly to another group of medical problems in which considerable knowledge has been gained within the last few years. I refer to the ductless glands. Much fanciful and much foolish literature has been produced on endocrinology. But, nevertheless, there is a modicum of truth to be found in it. There is considerable difference between discovery of the effect of deficiency of the secretion of internal glands, and the use of glandular extracts as remedial agents to overcome such deficiencies.

Advanced disease of these glands displays gross distortions of growth; the dwarf, the giant, the cretin, the mongolian idiot, adiposa dolorosa, myxoedematous patients. These gross maldevelopments, while interesting, of-

fer only curiosities. Little it is that glandular therapy can do in these advanced conditions. The action of the adrenals and the thyroid are solving some new problems. The adrenals furnish an internal secretion which has a definite action: (1) on the circulation, (2) on the muscular system, (3) on pigmentation in the skin, (4) on metabolism, and (5) on sexual development. For instance, Addison's disease is signaled by progressive muscular weakness, increased pigmentation in the skin, hypotension and a train of symptoms in the gastrointestinal, circulatory and nervous system. The most interesting advance in this field is the action of therapeutic uses of adrenalin. Adrenal in 1:1000 solution has become a widely used agent. You doubtless use it in your work. Internists use it hypodermically in asthma, angioneurotic oedema (or urticaria), Addison's disease, hemorrhage, as a test in heart function and hyperthyroidism (Goetsch Test).

Also, the pituitary gland has recently come to the forefront in medicine. I can only hint that acromegaly, or skeletal overgrowth, is the most aggravated form of pituitary glandular hyperplasia. When it appears, an increase in length of the long bones, gigantism, results.

The thyroid gland disturbances afford us abundant examples of the late medical advances in endocrinology. The function of thyroid is to elaborate and deliver into the blood stream a secretion containing an active agent called thyroxin. The chemical and physiologic properties of thyroxin indicate that it is used in the process of oxidation; it is active in nearly all or all the cells of the body; it is a catalytic agent, hastening the rate of formation of a quantum of potential energy available for transformation or excitation of the cells; it controls the metabolism in the body. The human body contains approximately 14 milligrams of thyroxin. The subject is too complicated to elaborate upon and we can only hint in passing that acute colloid goitre and adenomatous goitre are most common disturbances of thyroid, while exophthalmic goitre is to be most feared. The most fruitful field of application of thyroid extract administration lies in the hypothyroid cases which are often seen in fat women with low metabolic rate. Thyroid extract is a potent remedy, but dangerous, and should be used only with care.

To conclude, as an internist, I may be pardoned for saying that medical men of the last quarter of a century may justly be proud of the solved problems of medicine, while they confess to the perplexity of much that remains to be solved.

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INTRAPERITONEAL TRANSFUSION WITH REPORT OF TWO CASES.*

By CHAS. E. CONRAD, M. D., Harrisonburg, Va.

Several interesting articles came to my attention last summer relative to blood transfusion by the intraperitoneal route. About this time I had two babies to come under my care, who, it appeared to me, could only be saved by transfusion, and after examination I saw it would be necessary either to cut down on the vein, with the subsequent scars through life, or to use the sinus route. I decided to use the intraperitoneal route and will later give history and results in both cases.

First, I think it best to give a summary of what has been done experimentally to justify such a procedure. The following summary of the experimental work is taken from an article by David M. Siperstein, M. D., "Intraperitoneal Transfusion With Citrated Blood," *American Journal of Diseases of Children*, April, 1925.

"MacCallum has shown that the peritoneal epithelium is a complete layer of cells and entirely distinct from the lymphatic endothelium. These epithelial cells lie on a basement membrane, 'uniformly thin except where it overlies the lymphatic lacunae, in which position it is represented by a lattice work of fibrils separating the epithelium from the surface of the lymphatics.' The absorbing terminals of the diaphragmatic lymphatics are separated from the peritoneal cavity only by the loosely woven connective tissue and the peritoneal epithelium."

In 1906 Buxton and Torrey found that chickens' red blood cells were present in the anterior mediastinal nodes within fifteen minutes after their injection into the peritoneal cavity of a guinea-pig. Siperstein successfully demonstrated nucleated red corpuscles in the general circulation fifteen minutes after the intraperitoneal introduction of pigeon's blood into rabbits.

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In the absorption of material from the peritoneal cavity, we have, therefore, to consider the mesothelial lining cells of the peritoneum, the thin basement membrane and the lining endothelium of the lymphatic vessels.

Ruh and McClelland recently showed that the blood introduced into the peritoneal cavity reappears in the thoracic lymph stream within ten minutes.

These results prove that red blood cells can pass through the peritoneal mesothelium without any morphologic changes. They also show that the lymphatics draining the diaphragm are the chief port of entrance.

MacCallum found that both the epithelial cells lining the peritoneum and the endothelial cells lining the lymphatics are phagocytic. He concluded that granular material injected into the peritoneal cavity finds its way into the lymphatics of the diaphragm in three ways: first, the lining cells of the peritoneum may actively phagocytize and transfer the particles to the adjacent lymphatics; second, the mechanical agency of the respiratory pumping motion may force materials between the cells; third, phagocytic leukocytes may pick up and transport the material from the peritoneal cavity to the lymphatic vessels.

Cunningham concluded that: "Most, if not all, of the transfer of granular material from the peritoneal cavity into the diaphragmatic lymphatics during the first thirty minutes takes place by means of a type of phagocytosis. That later on the leukocytes do bring in loads of granules is undoubted, but it seems very likely that the large inflow of free granules continues so long as any remain free in the peritoneal cavity."

In treating the cases in which I used the intraperitoneal route I used citrated blood (10 c.c. of a 2 per cent solution of sodium citrate to 100 c.c. of blood). While some authors state it is not necessary to type the blood, I feel that it is best.

See that the bladder is empty and insert needle into peritoneal cavity half way between the symphysis and umbilicus, using a needle with a short bevel at the point. After being inserted, the line of needle should be lowered to lie nearly on line with surface of abdomen. The blood can be given either by gravity or by syringe. I used a 30 c.c. Luer glass syringe and found it very satisfactory. The blood is injected slowly. In the two cases I am report-

ing I used 50 c.c. in one and 100 c.c. in the other for the first injection, but would not hesitate to give 150 c.c. as the first injection in the future, as neither baby showed any reaction after being given this amount, either by temperature rise over 1° Fahrenheit, abdominal distention, or abdominal tenderness.

CASE REPORTS.

D. C., one year old, severe pyelitis and secondary anemia, haemoglobin 26 per cent (Sahli), red blood cells 1,450,000, August 27, 1924, white blood cells 11,000; differential count polymorphonuclear neutrophils 43 per cent, lymphocytes 57 per cent.

August 28, 1924, 50 c.c. citrated blood from father, given intraperitoneally.

August 29, 1924, haemoglobin 28 per cent, red blood cells 1,600,000.

August 30, 1924, 150 c.c. citrated blood intraperitoneally.

August 31, 1924, haemoglobin 38 per cent, red blood cells 2,240,000.

September 5, 1924, 150 c.c. citrated blood intraperitoneally. Haemoglobin had dropped to 37 per cent, red blood cells to 1,950,000.

September 6, 1924, haemoglobin 44 per cent, red blood cells 2,160,000.

September 10, 1924, haemoglobin 58 per cent, red blood cells 2,800,000.

September 18, 1924, haemoglobin 60 per cent, red blood cells 3,000,000.

February 1, 1925, haemoglobin 70 per cent, red blood cells, 4,208,000.

It was interesting to see the pale, weakly stained red blood cells in the slide before transfusion, then, after the transfusion, the large number of full well-stained cells. These cells would be destroyed a few days after each transfusion until the one on September 5. After that we did not notice this destruction or loss of haemoglobin. The baby has continued to do well since.

REPORT OF BACTERIOLOGIST.

"The original blood picture showed a marked anisocytosis, a striking poikilocytosis, and a distinct oligochromemia.

"After the first transfusion there were two types of cells: the one, those of the recipient, were exactly the type seen before the transfusion; while the others, those of the donor, were large well-strained cells.

"After the second transfusion the same thing occurred. And although the large cells

were destroyed, there was still no evidence of any stimulation of the bone marrow.

"After the third transfusion, in spite of the fact that there were still no nucleated red cells, the blood showed a slight polychromatophilia and gradually developed into a normal picture."

F. R., thirteen months, chronic diarrhea, condensed milk feeding, mild scurvy, and severe oedema, face, body, and extremities.

August 4, 1924, haemoglobin 40 per cent, red blood cells 1,480,000, 100 c.c. Citrated blood given intraperitoneally from father.

August 6, 1924, haemoglobin 50 per cent, red blood cells 2,032,000, 130 c.c. citrated blood given intraperitoneally.

August 7, 1924, haemoglobin 60 per cent, red blood cells 2,688,000.

August 9, 1924, 100 c.c. citrated blood intraperitoneally.

August 11, 1924, haemoglobin 65 per cent, red blood cells 3,600,000.

August 15, 1924, haemoglobin 75 per cent, red blood cells 3,840,000, no oedema.

August 28, 1924, baby discharged in good condition, taking food well, stools normal, and no oedema.

REPORT OF BACTERIOLOGIST.

"The first blood picture on this patient showed a very marked anisocytosis and poikilocytosis, red cells staining very faintly, barest outline in some cases. Differential gave a high lymphocyte count. After first transfusion anisocytosis very much reduced, with poikilocytosis running about approximately 10 per cent. Nucleated cells made their appearance here; 4 normoblasts and 3 megaloblasts were encountered when making a differential count here.

"The last examination of blood showed a large number of erythroblasts and were polychromatophilic. Anisocytosis had practically disappeared. Poikilocytes were not so numerous."

I feel sure both these cases would not have recovered but for transfusion. While I do not mean to depreciate the value of direct transfusion, yet I do feel there is a definite place for intraperitoneal blood transfusions due to its simplicity and good final results.

I wish to thank Mr. A. A. Shanks and Miss Louise Story for doing the blood work in these cases.

EARLY SURGICAL INTERVENTION IN PROSTATIC HYPERTROPHY.*

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The frequency with which urinary disorders occur in men after the fifth decade of life varies from 50 to 60 per cent. Due to the chronic retention of urine, 15 per cent of this number will require some form of drainage, either by operation or catheter. The average age of the patient suffering from prostatic adenomata is sixty-five years. Those seen under fifty years of age are frequently the result of an inflammatory process at the bladder outlet, called median bar or contracture. Caulk reports a series of 494 cases in which contracture of various degrees was found in 40 per cent. It is generally agreed that this process is inflammatory in character. The other form of obstruction most often encountered is glandular hyperplasia. This occurs in from 65 to 80 per cent of all cases of prostatism. It is in this adenomatous tissue that carcinoma is so prevalent.

The position of the adjacent genital structures, including the seminal vesicles and deep urethra, affords a fertile soil for the development of the inflammatory type of obstruction. Cancer has been found in approximately 20 per cent of the prostatic adenoma removed at operation. Once the adenomatous tissue undergoes malignancy, the prognosis becomes very grave. The perivesical tissues are rich in lymphatics and the regional lymph nodes show involvement in 10 per cent of the total. Bumpus reports a series of cases with cancer of the prostate, in which metastasis involving the bones had occurred in 30 per cent, the pelvis and spine being the bones most often invaded. With the 30 per cent bone involvement added to the 10 per cent regional lymph gland metastasis, we have 40 per cent in which surgical intervention is definitely contra-indicated. The insidiousness of the malignant changes which occur in prostatic cancer has a tendency to lull the patient into a false sense of security. Hunt reports a series of cases, in which prostatectomy was done, with carcinoma present, and found that less than 20 per cent were living at the end of two years. It is only in the early stages, that enucleation

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of the adenoma will afford the patient any hope of a permanent cure. The establishment of a suprapubic fistula, as a palliative measure is justified, where severe infection intervenes and massive retention is present.



Fig. 1.—Dumb-bell stone, in bladder and diverticulum. Patient also has benign adenoma prostate. Diverticulum resected and stone removed. Author's series. Age 66.

We are concerned chiefly with the benign growths of the prostate, as it is in this type of case that an ultimate cure can be expected from an operation. When a patient comes to us for consultation, complaining of nocturnal frequency, difficulty in starting and stopping the urinary stream, together with pain and incomplete emptying of the bladder, our attention is immediately focused on the prostate as a probable cause of such symptoms. In the inflammatory type, the nocturia and difficulty of urination are usually present, and, as a rule, surgical measures are not as beneficial as is the removal of small segments of the fibrous ring, preferably by the Caulk cautery punch. Geraghty also devised an instrument for dividing the contracted ring at the vesical neck. By these methods the patient is not subjected to the attending danger of a major operation and the end results are even better than where the contracture is divided suprapubically. Caulk recently reported 175 cases in which the cautery punch was used with very excellent results. The presence of residual urine, together with difficulty in emptying the bladder,

is indication for removal of the obstructing mass by surgical measures. The earlier this is done, the better will be the patient's chance of an ultimate cure. With residual urine present constantly, 90 c.c. or more in quantity, it is futile to temporize with palliative treatment, such as prostatic massage and the passage of sounds. If carcinoma is present, massage will tend to produce a widespread metastasis.

As a result of obstruction at the bladder neck, back pressure on the kidneys soon manifests itself by a low grade urosepsis, the severity of which depends on the character of the obstruction. If this back pressure is allowed to persist, the kidneys will become so badly deranged that the possibility of a cure is greatly lessened.



Fig. 2.—Large diverticulum bladder involving right ureter. Author's series.

When a man past fifty years presents himself with symptoms of a chronic urinary obstruction, a careful history and urological examination will reveal the cause of the symptoms and the degree of urinary retention. The blood pressure will be found much ele-

vated as a result of the back pressure throughout the renal system. This being compensatory in character, forms a rough index as to the amount of back pressure and uremia. Following drainage of the bladder, the blood pressure will frequently drop as much as 50 mm. of mercury, finally becoming stabilized when the kidneys have reached the maximum output. The amount of residual urine may be quickly and accurately determined by catheterizing the patient following urination. Unless the residual urine is relieved by drainage, the kidney function becomes lessened and the nitrogenous waste products soon assume serious proportions in the blood. Very frequently these prostatic cases have an overflow retention, due to the protrusion of a pedunculated median lobe through the sphincter muscle. The resultant dribbling of urination causes the patient much worry and discomfort. Nocturnal frequency causes the loss of sleep and this, added to the gastro-intestinal disorders, so often an accompanying factor, rapidly undermine the patient's health, making him a poor risk for any interference.

Statistics show that the average expectancy of life following the institution of catheter drainage alone, is less than five years. The patient should be warned that no hope of any permanent cure can be obtained other than by a prostatectomy. Age *per se*, is not a definite contra-indication to enucleation of the prostate, as many men past ninety years have successfully undergone this operation.

Cystoscopy is of great value before operation, in order to determine the type of obstruction present, and whether or not a stone or diverticulum is present in the bladder. Judd found diverticula as an accompanying factor in 5 per cent of a series of prostatic cases. I found diverticula as an associated bladder condition, in seven per cent of my cases. It is generally agreed that the diverticulum should be removed at a separate operation, i. e., before the prostate is removed. Bladder calculi are very prone to form in the presence of the chronic residual urine with infection, and are seen in 12 to 15 per cent of the prostate cases coming to operation. These two complications of prostatic adenoma make it imperative to determine the exact pathology present, before the patient is operated on, in order to obviate the possibility of overlooking one of these conditions. That this has not been in-

frequently done in the past, is evidenced by the large number of patients with only partial functional recovery following prostatectomy. All cases do not require a cystoscopic examination, but if the so-called two-step operation is contemplated, the bladder should be opened sufficiently to permit a visual examination at the preliminary cystotomy. The scar tissue forming after this operation will preclude any such examination at a later date. With the 20 per cent malignancy added to the 17 per cent associated bladder complications, we have 37 per cent of the total in which an exact pre-operative diagnosis is imperative, if we are to give the patient the benefit of modern urological diagnosis.

The bladder may be drained by an indwelling catheter or by a suprapubic cystotomy, depending on the preference of the operator. It is the opinion of the writer that this can best be accomplished by the catheter in the majority of cases. Young, Freyer and others have shown that only about 7 per cent will not tolerate an indwelling catheter, and in their hands it was substituted for the suprapubic cystotomy in over 90 per cent of a total of twenty-



Fig. 3.—Cystogram showing multiple small diverticula of bladder (3) associated with adenoma of prostate. Left ureter also shows small sacculation. Patient age, 84. Author's series.

five hundred prostatectomies. Hunt reports a series of 202 prostatic enucleations and utilized the two-step operation in only 19 per cent. It is often said that if a patient does well with a catheter, he will do even better with a two-

step operation. That this does not apply is shown by the fact that the preliminary suprapubic drainage carries a definite mortality of from 8 to 10 per cent. In the open operation, better exposure is obtained and hemorrhage can be controlled with the exactness of any other surgical procedure. Even if a suprapubic cystotomy is done, the bladder should be gradually decompressed by catheter drainage, to obviate the rather high mortality following sudden drainage of a distended bladder. This converts the two-step operation into a three step prostatectomy.

The suprapubic method of approach permits access to that part of the hypertrophy most often seen, the large intravesical median and lateral lobes, which have herniated into the bladder through the internal sphincter, leaving the external sphincter free to control urination after operation. I have observed that the internal sphincter rarely resumes its function after prostatectomy, having had occasion to remove vesical calculi following perineal enucleations done elsewhere, in which cases the internal sphincter muscle was functionless. The mortality by either method is the same in competent hands, while it cannot be denied that the rectum and external sphincter are less liable to injury by the upper route. Incontinence of urine, in benign growths, is rarely seen in the upper route.

The mortality rate during the last fifteen years has steadily declined from 25 to about 5 per cent. This is due, in a large measure, to the more careful pre- and post-operative care given these old prostatics. It is frequently necessary to drain them over a long period of time to improve the kidney function sufficiently to justify an operation. The blood chemistry findings closely parallel the renal function tests and general well-being of the patient, so that we can accurately forecast the outcome, as well as prevent a terminal uremia. The daily blood pressure readings give a good insight into the patient's general condition. It should show very little variation. The amount of solids excreted in the urine should give a specific gravity reading of 1.010 or more before the patient is considered suitable for a prostatectomy.

Inhalation anesthesia, in the past, has been one of the chief factors in the mortality following this operation. With the improvements made in local anesthesia, it is no longer neces-

sary to subject the kidneys to the added load that ether anesthesia implies. Chute, Day, Gardner, Smith and others have obtained excellent results with intradural anesthesia. In my hands it has been very satisfactory. The marked hypotension following its use can be largely eliminated by a low injection, given slowly, with caffeine hypodermically, before the anesthetic is injected. Labat and Meeker have



Fig. 4.—Cystogram shows bladder contents regurgitated into ureters, and both kidney pelves. Diagnosis bilateral, hydronephrosis, result obstruction by prostatic adenoma. Author's series.

pointed out the value of transsacral and caudal block for anesthesia of the prostatic region. It is successful in 90 per cent, if its use is limited to those who are especially trained in its administration. Ethylene promises to supplant nitrous oxid and gas in cases where local anesthesia is not used. The relaxation is much better and cyanosis is absent. The breathing is regular and quiet. Kretschmer used it with very satisfactory results in a series of cases. The danger from explosion has largely been eliminated.

The end results following operations on the prostate show that we can promise the patient a good functional result in at least 85 per cent, with less than 5 per cent showing no definite improvement. We are often asked what will be the effect of the operation on the sexual function. Carefully compiled follow-up records show that where the sexual function is pres-

ent before operation, it will be present in about 75 per cent of the cases following operation if a suprapubic prostatectomy is done. Though the prostate gland is essentially concerned in the sexual cycle, removal of the adenoma does not interfere with its physiological function.

In conclusion, it may be said that the end results following prostatectomy, as concerns function and a final cure, depend on how long the back pressure and chronic kidney disease has been allowed to persist. The earlier the obstruction is removed, the less likely will carcinoma develop and acute retention supervene. In my hands the mortality following suprapubic prostatectomy has been 4.4 per cent in a series of unselected cases.

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SCIATICA TREATED BY EPIDURAL INJECTION.*

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The injection of the epidural space in the treatment of sciatica is not a new conception. A number of authors have reported good results and the only wonder is that it has never been more popular, seeing that most forms of treatment, both medical and surgical, have not been brilliant in their results. Stretching the nerve was practiced at one time but has been abandoned. Manipulation under an anaes-

thetic has proven of benefit in certain cases, but on the whole has not been particularly beneficial. The removal of foci of infection, such as apical infection of teeth, bad tonsils, infected gall-bladders, etc., is important and should be attended to in each case. The treatment by immobilization in a plaster cast has been beneficial, particularly in cases where there is a definite history of injury. These are just a few of the many treatments that have been used to alleviate the pain commonly known as sciatica.

The pathology of sciatica is not definitely known. No characteristic lesion of the nerve has been demonstrated. "Sciatic neuritis" and "sciatic neuralgia" are terms that have been used to designate where there is pathology and where there is none, but at the present time the differentiation is hardly justified. Osteoarthritis of the lumbar spine is not infrequently seen in patients suffering from sciatica and yet it is not characteristic of this ailment. It is just as frequently encountered where there is no pain.

Cathelin and Sicard injected the epidural space as early as 1901 for relief of pain in sciatica. They used cocaine in saline solution. Ott reports forty-eight cases treated by the injection of 50 c.c. of 0.5 per cent novocain in physiological saline. At the same time all possible foci of infection were removed. In this series, 29 per cent were permanently cured, 37 per cent were restored to active life with a fair degree of comfort, and 34 per cent apparently not improved. Other authors have reported even greater success. Feuillade had 80 per cent of cures among soldiers.

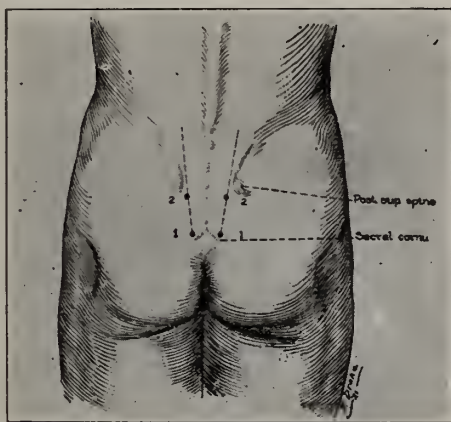
Ott thinks that the beneficial result from injecting novocain solution into the epidural space is due to pressure on the roots covered by a fold of dura or on the ganglia in the foramen. He notes that the injected fluid may reach as high as the cervical region.

The technic is fairly simple. No previous preparation of the patient is necessary. The injection may be done at a hospital, at the patient's home, or in the office, where the case is ambulatory. The patient lies face downwards over several pillows placed so as to elevate the buttocks. The hiatus sacralis is located at the junction of the sacrum and coccyx. In a thin subject this is not difficult, but in very stout subjects I have found it helpful to put a gloved finger in the rectum and by

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manipulating the coccyx, locate the hiatus. Under strict aseptic conditions a Labat spinal needle is inserted through the skin, at an angle of about 45 degrees, and a small amount of novocain injected. This is continued until the needle can be felt to impinge upon the bone. A little novocain is injected ahead of the needle at each advance, which makes the procedure practically painless. Where the needle is felt to touch the sacrum it is depressed about 10 degrees and usually slips into the sacral canal without difficulty. It should be inserted 5 cm. or 6 cm., being careful not to puncture the dura. If any spinal fluid appears after waiting a few seconds the needle is withdrawn one or two cm. and the injection is not begun until it is quite certain that the needle is not in the subarachnoid space. The solution is prepared by sterilizing 0.25 gms. of novocain in a small amount of physiological saline and then adding enough of the latter to make 50 c.c. The solution is injected slowly. The patient usually complains of pain on the affected side and I have learned to look upon this as a favorable sign.

If one injection does not relieve the pain it is well to repeat it in two days. Several injections may be given.



Shows position for insertion of needle between the cornua. (Labat).

Case 1.—Colored, female, thirty-six years old. Seen April 18, 1924, complaining of pain in her left thigh and hip. Had typhoid fever. Pneumonia two years ago. One child living and two miscarriages. The pain in her leg began in January, 1923, and was fairly constant thereafter. Practically bed-ridden.

She received four injections, 50 c.c. each of one-half of one per cent novocain in the epi-

dural space at intervals of two and three days. She left the hospital unimproved, but wrote on September 25, 1924, that she had entirely recovered. Wassermann negative. X-ray showed "arthritis of each sacro-iliac articulation," and multiple abscesses of teeth. Alcohol and novocain had previously been injected into the nerve without relief.

Case 2.—Mr. B. B., white, male, fifty-five years old. Seen March 2, 1924, complaining of severe pain in his left leg. Several years ago he was shot while hunting and a number of grains of shot have remained embedded in the muscles of the leg. The present trouble began the latter part of December, 1923, and since then he has been disabled. Has had to take morphine for the relief of the pain. X-ray showed "slight arthritic changes of lumbar vertebrae." Teeth negative. On March 8th, 15 c.c. of novocain solution (one-half of one per cent) and 20 c.c. of normal salt solution were injected into or in the vicinity of the sciatic nerve. No relief followed. On March 17th, 40 c.c. of one-half of one per cent novocain was injected into the epidural space and two days later this was repeated. He was completely relieved of the pain and went home two days after the last injection. To date he has had no return of the pain.

Case 3.—Col. J. B. D., army officer, fifty-five years of age. Seen April 7, 1924, complaining of pain in the right leg. Tonsils removed in 1921. Has had some decayed teeth drawn. The trouble in his leg began in December, 1923, after a long automobile ride. Just previously he had had a bad cold. He was treated for several months at Walter Reed Hospital. An X-ray taken then showed some arthritis of the lumbar spine. On April 7th, 50 c.c. of one-half of one per cent novocain was injected into the epidural space. The patient left the hospital an hour or so after the injection. He writes under date of May 14th that he has had no return of the pain.

Case 4.—Mrs. J. T., white, age sixty-one. Seen January 10, 1925, complaining of severe pain in her right leg. She has always been delicate. Eight years ago she had a nervous breakdown. The present illness began three months ago. Since the onset she has spent most of the time in bed. The pain starts in the buttocks and runs down the thigh and into the calf. On January 10th, 50 c.c. of novocain was injected into the epidural space. This

was repeated on the 15th. Condition much improved.

Case 5.—Mr. J. S. DeL., age fifty. Seen January 16, 1925, complaining of pain in the left leg. He has only seven remaining teeth. One appears to be decayed. Present illness began about a month before entering hospital. It came on suddenly after stooping hurriedly to catch a falling object. The pain was in the back at first, but later more severe in the thigh and calf. The pain was so severe one night that he called an ambulance about three A. M. and was taken to the Emergency Hospital. On January 16th, 50 c.c. of novocain solution was injected into the epidural space. Two weeks after the injection patient reported himself free from pain, but as having some numbness on the left side. He has been able to resume his work as a cook.

Case 6.—Mr. F. J. W., age sixty-eight. Seen January 26, 1925, complaining of pain in his left leg. Operated on for appendicitis and gall-bladder trouble. Present illness began three weeks ago with pain in the left thigh, radiating to the knee. The pain has been constant and burning and he has been unable to sleep. The patient refused to go to the hospital and an effort was made to inject the epidural space with novocain at his home. He could not lie on his bed because of the pain but bent over the side of the bed. The position was awkward and it is doubtful if any of the fluid reached the epidural space. He did not experience the characteristic sensation of pain on the affected side. He received no benefit from the injection and refused further treatment.

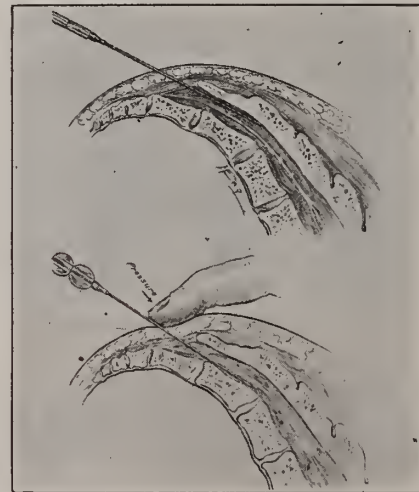
Case 7.—Mr. S. N. P., age forty-three. Seen March 2, 1925. In 1905 he was wounded in the chest (Russo-Japanese war) and since then has had at intervals a discharging sinus. About six weeks ago he started with pain in his left leg, particularly the thigh and calf. The pain has never been very severe and disappears when he is at rest. On March 3rd, 50 c.c. of novocain solution was injected into the epidural space. On May 14th patient reports himself as having practically no pain.

Case 8.—Mr. N. L., age forty (?). Seen April 3rd. The pain in his back and right leg had been of long duration, dating back ten years. At first it was in the lumbar region, but more lately it had been in the thigh and along the sciatic nerve. He had been un-

able to sleep. A cast was applied but gave no relief. Two teeth were found abscessed and were withdrawn. April 4th novocain was injected into the epidural space. Considerable improvement.

Case 9.—Mrs. F. M., age fifty. Seen April 23, 1925. Past history unimportant. Present trouble began about the 15th of April with pain in both legs and back. Just prior to the onset she had had a severe attack of sore throat and stomatitis. The pain was worse in the morning about 2 A. M. or 3 A. M. It has jumped about, being first in one leg and then in the other, and worse sometimes in front and sometimes in the back. She complained of her knees and shins hurting her. The night before coming to the hospital she had kept her physician by her bedside until 3 A. M. because of the intense pain. An X-ray showed marked osteoarthritis of the lumbar spine. Wassermann +. On April 27th, 50 c.c. of novocain were injected into the epidural space. The patient had immediate and complete relief from the pain.

Case 10.—Mr. H. H. S., fifty years old (?). Operated on for appendicitis April 14, 1925. He had had pain along the course of the sciatic nerve for about two months. Not enough to keep him awake. On May 14th, 50 c.c. of novocain was injected into the epidural space. Patient went home immediately after the injection. Very little if any improvement.



Needle in epidural space. (Labat).

SUMMARY.

Of the ten cases that form the basis of this report, seven were male and three female. All but two had definite pain along the course of

the sciatic nerve. One of these had pain in both legs which was generalized; the other, on the outer side of the thigh. Seven were confined to bed when first seen and three were ambulatory. Only one gave a definite history of an injury, and in another case the attack followed a long automobile ride and a bad cold. Lasegue's sign was positive in six cases. An X-ray was taken in four cases and in each case the roentgenological report was osteoarthritis of the lumbar spine or sacral region, or both. The number of injections varied from 1 to 4—average 1.6. Focal infection may have played a part in five cases. The average duration of symptoms before injection was 7.3 weeks. Four cases were apparently cured, three improved and three not improved. One of the latter probably should not be counted because it is doubtful if any fluid reached the epidural space.

CONCLUSION.

1. The pathology of sciatica is not definite.
2. About 65 per cent of the cases treated by the injection of novocain solution are either cured or greatly improved.
3. The best results have been seen in the cases which had the most pain.
4. The injection is simple and without danger, if properly done.

1015 *Sixteenth Street.*

SURGERY OF THE GALL-BLADDER AND DUCTS.*

Clinical and Pathological Aspects.

By LINWOOD D. KEYSER, M. D., Roanoke, Virginia.

During the past few years our knowledge of cholecystitis and cholelithiasis has been somewhat modified from time to time by contributions from clinical and pathological sources. While dispute is still rife as to the function of the gall-bladder, we may hold certain facts as established. The gall-bladder seems to act somewhat as a tension bulb for the bile. It concentrates the bile in pigment content and adds mucus thereto. Furthermore, in some way, by its presence, the gall-bladder maintains an intermittent discharge of the bile into the small intestine. Animals lacking a gall-bladder pour their bile into the duodenum constantly, whereas those in whom it is present have an intermittent biliary

flow brought about by stimuli incompletely known.

Experimentally and clinically, it has been shown that when the gall-bladder is removed the following phenomena may be observed. The sphincter of Oddi ceases to act as a sphincter, the common and hepatic ducts undergo compensatory hypertrophy and dilatation, and the discharge of bile into the duodenum becomes almost, if not quite, constant, rather than intermittent. No experimental or clinical data tend to show that the removal of the gall-bladder, with the physiologic readjustment which follows, has any deleterious effect on the metabolism or general health of the individual.

The pathologic types of gall-bladder disease need not be considered in detail. Aside from malignancy we may mention catarrhal inflammation of the mucosa, lipid deposition being frequent and giving rise to such appearances as the terms "strawberry" and "fish-scale" gall-bladders describe; the thickened gall-bladder with infiltrated walls and periductal lymphadenitis; pericholecystitis with adhesions to neighboring structures; cholecystitis with cholelithiasis; acute purulent cholecystitis (empyema); gangrenous cholecystitis (with impacted stone in the cystic duct); the condition of hydrops of the gall-bladder, and other pathological types which are well known.

It is a noteworthy fact that hepatitis, with lymphoid infiltration of the liver and thickening of Glisson's capsule, is to some degree always present with cholecystitis, and pancreatitis of a cicatricial type is likewise frequently found. The work of Deaver, Graham, Mann and Giordano and others in this field has been particularly illuminating. The portal of entry of infection to the gall-bladder has been much discussed, the liver and pancreas being held by some observers to be primary sites, with secondary spread to the gall-bladder by blood and lymph channels, or by the biliary secretion itself. Others, probably in the majority, feel that the gall-bladder is directly infected from the blood stream or from the portal circulation. Spread of the infection from the gall-bladder by lymphatic channels to the liver or pancreas explains the frequent involvement of these organs.

Clinically we may differentiate several types of cholecystitis. First, there is a spastic type, with short, sharp, lancinating pains radiating

*Read before the Southwestern Virginia Medical Society, in Pulaski, Va., March, 1925.

from the hypochondriac region, usually on the right side to the shoulder, around the costal margin or toward the umbilicus. Thickened bile, impacted pigments, stone or pylorospasm may cause this. The site of pain reference at times is interesting. Several years ago I had my attention called to the fact that an impacted stone in the cystic duct may not infrequently cause all of the pain reference to be located to the left of the midline, either high under the chest, or under the left scapula. I have seen this condition several times since. An illustrative case may be mentioned. In September, 1924, a female, *aet.* thirty years, consulted me complaining of headache, vertigo, and periodic attacks of pain always localized under the left scapula. At times also there was pain radiating around the left costal margin. Lyon drainage gave evidence of thickened, dirty, purulent bile and upon repetition the patient showed some relief. However, recurrences of the pain led to suspicion of gall-stones, although definite tenderness over the gall-bladder was only occasional and insignificant. X-ray examination showed the gall-bladder to be packed with stones. The patient entered the Roanoke Hospital and was operated on March 3, 1925. A thin walled gall-bladder containing about two hundred stones was removed. One of the stones was lodged in the cystic duct and this, to my mind, accounted for the colics associated with left-sided pain, there having been no recurrence of symptoms since.

Any sharp cramp-like pain in the upper abdomen or chest should lead us to think of biliary tract pathology as a possible cause.

The dyspeptic type of cholecystitis may be mentioned as a second group. These patients give a long history of epigastric distress, this coming immediately or within an hour after meals, not being relieved by further eating. There is gas, bloating, distention, eructations, nearly always a good appetite but the fear of eating. Qualitative food distress, especially for sour, fats, or sweets, which aggravate the symptoms, is almost always present in some degree. The patient complains of constipation, is sallow, and has frequent "bilious attacks." These prodromes may exist for years before upper right quadrant pain, tenderness, night attacks, colics, jaundice, and fever set in to clear the situation from a diagnostic standpoint. Almost all patients with gall-

bladder disease will have shown symptoms of the dyspeptic type at some stage of their clinical course. It may be added that symptoms of "weak stomach," with general dyspepsia and gastro-intestinal disorders of the "reflex stomach" type, are probably more frequently associated with cholecystitis and its concomitant liver toxemia than any other disease. So frequently do we find the patient who has had his appendix removed for chronic appendicitis return with the old set of symptoms, possibly aggravated by the lapse of time, only to be cleared up with the proper treatment of the gall-bladder infection, which has been present from the beginning.

What we may speak of as focal cholecystitis constitutes a third group of cases. These are not common and should be diagnosed with care. A brilliant example of the type came under my observation several months ago. The patient, a woman of forty-five, suffered from headaches, pain in the back of the neck and spine, as well as a severe right sciatic pain. Her only digestive disorder consisted of sick headaches with the belching of gas. Tenderness over the gall-bladder was lacking. In X-raying the spine for possible bony changes, definite gall-stone shadows were noted as an incidental finding. The tonsils and infected teeth had been previously removed. In October, 1924, I removed a thin walled gall-bladder at the Roanoke Hospital. This contained twelve stones. The patient has had almost complete relief from pain in the neck and spine, there have been no headaches, but a recent letter from Florida where she has been spending the winter tells me that the sciatica, while much improved, still persists. To my mind the case represents one of so-called "innocent gall-stones" with an inflamed gall-bladder acting as a focus of infection. Probably had a chance X-ray finding not called our attention to the condition it would have escaped notice until further localizing symptoms developed. To be sure one must be conservative in removing the gall-bladder as a focus of infection and it would have been poor judgment to have operated on the case just mentioned, had we not had positive roentgen evidence of biliary tract disease.

A fourth group of cases which is of especial interest is that of typical migraine associated with cholecystitis. This disease is as a rule familial and its cause or causes are not well

understood. Probably it occurs even with its abdominal crises more frequently without cholecystitis than with it. Yet it is remarkable to see what striking improvement follows cholecystectomy at times. In fact, the only cases of apparently true migraine which I have seen permanently relieved were those associated with gall-bladder inflammation in whom cholecystectomy had been performed. Headache of some order is a very frequent finding in the history of cholecystitis. "Torpid liver," "biliousness," "deranged liver," and the like, were terms used in the last generation to account for such conditions. The idea of a liver toxemia which may bring about the pouring off of toxic products into the blood stream due to imperfect liver metabolism is gaining ground on a more scientific basis, the efforts during the past five years to develop a satisfactory hepatic function test being good evidence of this. It may be that certain types of migraine are explicable on such a basis. For this reason when the gall-bladder is removed and drainage of the bile becomes more constant and free, the liver may have an opportunity to overcome its malfunction, with restoration of the patient's health as a consequence. A case illustrative of the beneficial effects of cholecystectomy in migraine may be mentioned. A male, age forty-four years, consulted me last year complaining of recurrent headaches with nausea. These had incapacitated him for years. The usual dyspeptic symptoms, gas, bloating, upper abdominal distress, and tenderness over the gall-bladder and appendix had been present for years. Any indiscretion in diet would bring out a fulminating attack of migraine lasting one or two days, with temporary relief from vomiting, saline purges, and sleep brought about with various drugs. Slight tenderness over the gall-bladder and appendix was noted, but the X-ray evidence and other features of the examination helped us little. At operation a thin wall gall-bladder, with slight lipoid deposit and periductal lymphadenitis, together with a suspicious thickening of the liver capsule, was noted. The pancreas was normal to palpation. The appendix, which was bound down and adherent, was removed. After some deliberation, we removed the gall-bladder also. It is now nine months since operation. The headaches have completely disappeared along with the major features of the dyspepsia. It

is interesting to note that this patient complained of loose stools for a number of weeks after operation. This is not an infrequent finding after cholecystectomy and is probably due to the constant outpour of bile into the duodenum. Fortunately, it tends to clear up after a period of time.

I will not enter into the relative merits of cholecystectomy and cholecystostomy—removal versus drainage of the gall-bladder. There are some, probably in the minority, who still hold that surgical drainage of the gall-bladder will ordinarily do everything to be desired. As the years pass and so many people are actually living without the gall-bladder, more and more do we find removal of this important viscus gaining ground. To my mind, drainage of the gall-bladder surgically or with a Lyon tube (if it really drains) can only hope to afford temporary drainage of the liver, a condition which cholecystectomy brings about as a permanent process. So frequently the temporary drainage afforded by suturing a tube in the gall-bladder is insufficient to allow the hepatic reparative processes to take place, that after a few months or a year of relief the patient comes back with a recurrence of former symptoms which can only be relieved by cholecystectomy.

In November, 1924, I removed the gall-bladder of a woman of thirty-five years of age, who had had typhoid fever in 1908. In 1910 her gall-bladder had been drained. In 1920, following several years of recurrent attacks, another surgeon had again drained. Following a short period of relief the symptoms returned, dyspepsia, pain, a tinge of jaundice at times, with severe frontal headache, relieved to some extent by vomiting, being most prominent features. When I first saw this patient her temperature was slightly over 100 degrees and there was acute tenderness in the right upper quadrant. In an interval of freedom from acute symptoms, the operation was done. Since her convalescence she has been again greatly relieved and I am watching her course with interest in the hope that this may be permanent.

There do seem to be some definite contraindications to cholecystectomy. Acute cholecystitis which will not respond to medical treatment is probably better treated by drainage. Severe hepatitis, cholangitis, associated pancreatitis, and gangrenous cholecystitis from

impacted cystic duct stone are conditions which require treatment according to the individual case rather than according to fixed rule. Some surgeons prefer not to remove the gall-bladder and open the common duct at the same operation.

The hazards of cholecystectomy have been properly emphasized. A high incision, elevation of the liver with the aid of a second assistant, who pulls up the round ligament and retracts the upper lateral abdominal wall, with careful packing back of stomach and intestines, will give good exposure of the gall-bladder fossa. In this way the junction of the cystic, common, and hepatic ducts can be carefully dissected out under vision before the cystic duct is clamped or cut. Such a technique will avoid most of the difficulties and keep the operative field under the surgeon's control. The cystic artery at times may slip away and cause apprehension. The surgeon can grasp the vessel between his thumb and index finger temporarily until the field is sponged clear, when the tip of the artery can be identified and a clamp accurately applied so that there is little danger of injury to the common duct or other important structures, an imminent danger if blind clamping in a bloody field is attempted.

Most of the patients will do well if the abdomen is closed with no drainage, but as Dr. McGuire puts it, "a soft rubber drain does no harm and makes the surgeon sleep better."

The pathologic diagnosis of cholecystitis at the operating table and under the microscope is at times difficult. I have several gall-bladders which grossly and microscopically show little evidence of disease, which were removed because they contained stones. Whether one should remove the apparently normal gall-bladder "on the history" is a mooted point. The history, physical, roentgen and laboratory findings must all be carefully weighed. If hepatitis, pancreatitis, periductal lymphadenitis are found with an apparently normal gall-bladder, it is well to remember that these conditions may and probably will be greatly benefited by the physiologic changes that follow cholecystectomy, especially if we have a good history pointing to trouble in this region. It is to be emphasized that such cases should be closely followed by both surgeon and internist, subsequent improvement or lack

of it being noted by means of "follow-up" records.

Common duct obstructions whether from stone, malignancy, or inflammation of the pancreas or stricture (which may be spontaneous or the result of operative trauma) lead us to the more serious considerations of jaundice, more difficult operative technique, and greater mortality. Pancreatic and stricture obstructions usually give us a painless jaundice, with a tendency to enlarged gall-bladder, if this be present, as was pointed out by Courvoisier years ago. The jaundice is deep and frequently no trace of bile is to be found either with the duodenal tube or in the stools, especially late in the disease. Severe colic, jaundice, often intermittent, with fever and prostration, help us to diagnose common duct stone. The duodenal tube will nearly always show some trace of bile in the return flow.

The administration of calcium chloride intravenously, together with transfusion and glucose by proctoclysis as developed by Walters in the pre-operative treatment of jaundiced patients should be mentioned as a great aid in reducing the bleeding time and in consequence lessening post-operative hemorrhage.

In states of total biliary obstruction with a destroyed or previously removed gall-bladder, we may find no liver secretion, but a mucus, the so-called "white bile." This indicates an extreme degree of liver insufficiency and our surgical efforts should be directed towards draining the common duct, when usually the return of true bile will take place in one to two days or even earlier. The absence of bile from the drainage after forty-eight hours is an ominous sign. Gradual drainage of the "white bile" by opening the common duct drainage catheter at intervals and letting out a little secretion at a time for a day or so, is advocated in certain extreme cases in order to avoid what Judd calls "liver shock," a state of collapse that may occur if the common duct is freely drained under such circumstance.

With the common duct completely obstructed from stricture or malignancy, anastomosis of the gall-bladder to the stomach or duodenum (cholecysto-gastrostomy or duodenostomy) will afford proper biliary drainage and give temporary relief. When the gall-bladder has been removed and the common duct has suffered injury, implantation of the hepatic duct into the duodenum preferably over a rubber

tube offers one source of relief and possible cure.

Malignancy of the gall-bladder and ducts is not frequent. It usually occurs in long standing cases of cholecystitis. Removal of the gall-bladder and drainage of the common duct or its resection, may give temporary relief, but on the whole surgery has little to offer with regard to permanent cure.

I have thus sketched in a cursory way some of the clinical and pathological aspects of biliary tract disease. Emphasis may be placed primarily on a few points. First, cholecystitis represents more than a local infection of the gall-bladder. We deal also with hepatitis, pancreatitis, and possibly some form of general gastro-intestinal infection. Appendicitis of some grade is nearly always found and peptic ulcer is occasionally present. Second, in removing the gall-bladder we establish to some extent a different type of bile drainage which seems to aid the organism to a great degree in overcoming these associated infections. At the same time we have removed a stasis point in the biliary stream where infection easily sets in and from which the other neighboring structures may be affected by lymphatic spread.

417 *Anchor Building.*

SINUSITIS IN CHILDREN.

By HERBERT R. ETHERIDGE, M. D., Norfolk, Va.

Introductory Remarks.—I believe sinusitis, especially in children, is very often overlooked and more often neglected. The reasons for this are numerous; some I shall mention.

Ordinary coryzas do not always clear up in the usual time, or they seem to clear, but really do not, and the parents think the child has caught a fresh cold, when in reality a sinusitis is present. Some mothers are so used to children having colds that they pay very little attention to such conditions.

Especially during influenza epidemics, when nasal discharge is so common, it is difficult for the mother and even the doctor to judge from the discharge an ordinary rhinitis from a sinusitis.

Development of Sinuses (post-embryonic).—I think it well to say a few words about the time of development of the different sinuses.

According to Skillern, at birth, the frontal sinus is absent and makes its appearance between the end of the first and beginning of the

third year, and up to the sixth or seven reaches only the size of a pea.

The sphenoid, at birth, is but a faint depression in the cancellated bone of the body of the sphenoid and begins to develop about the fourth month, being fully formed; is a real cavity not before the end of the first year, being fully developed at the age of sixteen.

Ethmoid.—These cells are present at birth and develop simultaneously with the frontal sinuses, from which they are derived.

Maxillary.—This sinus is present at birth and although very small, occupies a space internally to and not below the orbit. It is about the size of a small bean; the lining membrane is very thick, almost filling the entire lumen and giving it a slit-like appearance. The floor is high and barely reaches the attachment of the inferior turbinate.

This may seem very unimportant, but, given a child around two years of age, we could almost with certainty eliminate both the frontals and sphenoids as sinuses which could be involved.

In children under two years, the ethmoids are, in my experience, more often involved than the maxillaries. This, however, is contrary to the findings of many men with a wider experience.

Symptoms.—According to Lemere, attention has been drawn to the infection of nasal sinuses in children by one or several of the following symptoms:

Profuse nasal discharge, or post-nasal drainage, cough, persistent mouth breathing after tonsil and adenoid removal, pale face and lips, running ears, otitis externa, mastoiditis, poor appetite, recurring bronchitis, pneumonia, asthma, pleuritis, pyelitis, nephritis, headaches, mental hebetude, chorea and nervousness, arthritis, chronic pharyngitis, facial acne, conjunctivitis, phlyctenular and interstitial keratitis, and swelling of the cervical lymph nodes, etc.

Diagnosis.—Any nasal discharge which lasts longer than the time of an ordinary cold should be suspicious of a sinus condition. Signs of general toxemia should make one suspicious of sinusitis. In other words, any condition which could result from a focal infection, should direct our attention to the sinuses, and we should not feel satisfied, especially if no other cause is found, until we have eliminated the sinuses as a cause by every known means,

by examination, transillumination, suction and X-ray.

Treatment.—1. Non-operative; 2. operative. A number of good men advocate post-nasal sprays and claim excellent results. I have never used this method. My usual treatment is as follows:

Nasal suction every day, every other day, or once or twice a week, according to the severity of the case.

It is surprising how well the children behave during this treatment. It is not pleasant, and even some adults rebel, but if you explain to the child what you are going to do and start the suction gently, gradually increasing the strength of same, you will very seldom have trouble.

This treatment, of course, does two things. It first of all removes some, if not all, of the retained pus, thereby promoting drainage and lessening the infection. It also produces a passive hyperaemia, which is very beneficial.

After suction, I usually irrigate the nose with warm saline and soda solution, especially if there is much pus and if the child is old enough and will co-operate sufficiently to hold her breath while irrigation is being done. This is very necessary as infection of the ears is apt to occur if she should not co-operate.

Nasal antiseptic drops seem to help in some cases. I often use a 1-5000 metaphen solution; neo-silvol 10 per cent; argyrol 10 per cent to 50 per cent; protargol 2 per cent to 5 per cent; etc.

Vaccines.—These are beneficial when resistance is low and stimulation of resistance is indicated. In my opinion, a specific vaccine is not necessary; any one which will stimulate resistance is beneficial.

If sinusitis could be gotten early in the acute stage, I believe a great many more cures would result, but when they become sub-acute they are more difficult to cure, and when they become chronic, non-operative treatment usually fails and they are fortunate if they can even be cured by operation.

Operative Treatment.—This is indicated in both the acute and chronic condition; in the acute condition when pain and profuse discharge are present and persist, in spite of active non-operative treatment, or when prolonged treatment has been of no avail.

Conclusion.—I have, of course, been unable to give any new treatment, because, as far as

I can find, it does not exist; but if I can stimulate the general practitioner and the pediatrician, who have an opportunity to see these cases in the beginning, to keep their eyes open and institute treatment at once, then I believe we shall soon cease to see so many chronic cases of sinusitis in adults and this paper will not have been in vain.

517 Medical Arts Building.

FRACTURES ABOUT THE ELBOW JOINTS.*

By J. L. WRIGHT, M. D., Harrisonburg, Va.

I wish to speak in particular about fractures of the lower end of the humerus, since these are the most frequent and difficult of treatment.

In discussing these fractures, it is important to know something of the formation of the bony landmarks, particularly the epicondyles and epiphyses. There are four centers of ossification, namely: Internal epicondyles, whose center appears at the age of five and unites at eighteen; the capitellum whose center appears in the third year; the trochlea whose center appears at the tenth year; and the external epicondyle whose center appears in the fourteenth year. The latter three unite in the seventeenth year.

Before the age of union of these epiphyses, it is very easy to have a separation of any or all epiphyses with their typical deformities: swelling soon appears so that the landmarks are quickly obliterated, making diagnosis difficult. Skiagraphs are invaluable in making a correct diagnosis. The treatment depends upon the correctness of such diagnosis.

By far the most frequent fracture about the elbow joint is the supracondylar. In this fracture the lower end of the upper fragment projects forward and the upper end of the lower fragment backward. On attempting to flex the forearm on the arm a definite obstruction is encountered. With the patient anesthetized most of these fractures can be reduced and the arm put up in flexion, but there is a considerable number of cases in which upon subsequent X-ray examination, the fractures are found incompletely reduced. If left in this condition, limitation of flexion is so marked after union that the patient is unable to get the hand to the head or the mouth. It

*Read before the meeting of the Medical Association of the Valley of Virginia, Clifton Forge, Va., June 4, 1925.

is with this class of unreduced and unreduceable cases that we want to impress upon you the excellent results obtained by the open method of reduction.

When X-ray examination shows an imperfect reduction after a conscientious effort at reduction by manipulation, it is well to let the patient rest twenty-four hours, with cold applications to limit swelling. Then incise posteriorly, bring the fragments in approximation, remove loose fragments, close the periosteum with chromatized catgut and put the arm up in plaster at forty-five degrees. A small cigarette drain quickly relieves swelling and makes the patient comfortable. Passive motion is begun at the end of ten days and at the end of eighteen days all dressings are removed and the patient given a small weight to carry to straighten out the arm. By this method there are perfect anatomic and function results and a perfectly satisfied patient.

CANCER PLUS SUGGESTIONS BASED ON SUGGESTIVE EXPERIMENT.

By STEPHEN HARNSBERGER, M. D., Warrenton, Va.
(Recently of Catlett.)

A good many years ago I stumbled on a well scarred old book giving a brief historical sketch of Greenland and contiguous, year-through, ice-clad areas. Among other things of interest, the one constructive to me as a physician was the statement that those ice-bound natives were singularly exempt from tumors, especially cancerous growths. Curious to know why, I determined, to quote, "with this brain I must work." So, spying further, I found that according to their prevailing habit, established through necessity of isolation and seasonal sameness, the inhabitants there subsisted on fish and the fats of land and water animals, with one exception—a kind of moss or lichen which adheres to rock, ice, etc., the only green edible they had, which they ate pretty much like we make use of our salad food products; and that analysis showed that *this moss contained a very small amount of iodine*. At once it came to mind that it must be this iodine content in their ration that protected them from cancer and other tumor growths. From that day, as physicians who know me best, particularly in Washington, can verify, I have urged the use of iodinated preparations in trying to combat this horrible disease so prevalent among other peoples. Use

it by inunction to the affected parts; and as compounded at the present time, push it internally. For if it does no good in the way suggested, it will assist in ridding the system of other infections, and to that extent, at least, slow its course towards the sure dissolution. But just use it, or, better, perhaps, have the impressionable patients see to it themselves—the mental obscurity in the effort, by enhancing body resistance, makes it a personal advantage.

It is not possible to give any very lasting effects from its use in such cases because of the limited number of patients under observation; and, besides, the few cases in reach were too far gone to give assured results. Still, the venture encouraged, in fact, it may be said that iodine used locally on hopelessly affected patients greatly modified the local range and helped to mitigate the mental apprehension, as well as the distressing physical discomforts.

An old colored woman, repugnant in appearance and so badly stinking one could scarcely breathe in her room, had an enormous cancer of the uterus which, though projecting out of the vagina, and sloughed off to a great extent, returned to a higher position under the iodine treatment. The odor almost or entirely disappeared, and there was a return of appetite and fairly restful sleep. She thought she was sure to recover, but after a time new destructive activity beyond reach set up and the ending confirmed the history of the disease.

Another, seen and operated on at the University of Virginia Hospital for cancer of the penis, yielded greatly to the local and internal administration of iodine, but he finally succumbed to its ravages.

A third, a woman past middle age, with a cancerous condition just below the left breast, apparently mended nicely to local applications of iodine. This patient also went to Charlottesville on account of a stubborn cough, where it was found the disease was eating away the lung and was beyond the aid of surgery.

Now I simply publish this recital to stimulate, if possible, others properly interested in the welfare of humanity, to give more thought and effort along the lines indicated, for some day some one may hit upon the experimental luck that will really do lasting good to this, at present, hopeless class of sufferers.

In suspected cases, early intravenous iodinated preparations may stay the progress of

the disease. Or its intravenous use with the same use of mercurochrome, or, in connection with the same use of a different but pure blood at safe intervals under aseptic conditions, together with pushed nourishment, and quiet of mind and body, may lend the hope that will eventually respond in successful experiment. Likewise, there is reason for advising other precautionary measures in this connection: A certain content of the potassium bicarbonate (99.5 per cent pure) *ion* is necessary to fortify and maintain the human system against the encroachment of influenzal affections, rheumatic troubles, tuberculosis and other infections—possibly cancer. The trial can do no harm. A few days' precautionary administration every autumn and spring, cutting down the solid ration and increasing the water intake, is a safe and sane habit for everyone to adopt and follow through life. It is vastly preferable to running the risk of being sick. Not always, perhaps, but far too often, sickness is of one's own making. Conscientiously adhered to, every susceptible person can fortify himself against "taking colds," and the complaints they are known to leave in their wake. Then, why let yourself get sick?

I do not fall to the complacent notion that negated effort, based on what has been a closed past, is a path worthy the respect of human intelligence. It should, if rightly regarded, inure to increased thought and more determined exploration, investigation and experiment. It is the never-give-up spirit that wins.

Therapeutically, there seems to be a kindly affinity between iodine and the lymphatic function, for when this function deviates from the normal, the local and internal use of iodine and iodinated preparations readily restores the waning or lost action. While this claim is based on approved results essentially useful in evoking human energies, I am willing to grant that it is still confined to a therapeutic pose. Nevertheless, to an observing mind they are of material interest because it windows the fact that violated nature only *sleeps*—that natural vitality has not succumbed. This gives the inspiration and aspiration required to follow the details of unceasing contrivance and effort; and it furnishes impulse to foresight and future, guarded circumstances. For it is the feeling within that will out that encourages; that is, it is in the hospitality the host

accords the treatment—the sequence confidence.

Cancer is the futile result of the conflict between waste and economy—and economy is no more than elimination of waste. But will we heed this fact? Ask the experience and teaching of the past? Back of this, nature only rebels when grossly imposed upon. So it is with these local faults and many internal physical defections! May we expect to build surely on the slump in the past that has caused wholesale sacrifice to make these things true? Not if we have learned anything from past history or experience.

When applied to health, economy means elimination of waste, for it is holding of waste in the body tissues and blood and lymph channels which incites to local and systemic default—the sure forerunner of disease. Any detention or retention of refuse will eventually cause irritation somewhere, and this irritation will manifest its presence at the weakest or most vulnerable point; and, if prolonged, is sure to annoy or do worse.

Health depends upon the friendly interchange of waste and repair. Any interference with this compensating equality of function obstructs the forces that renovate and build.

Rational living is the only security against sickness, especially cancer. Nutrition, general and local, is at the bottom of all tissue changes or disturbances. Nutrition, the frontier of safety—the vanguard—carries potential danger at all times. Over-nutrition and under-nutrition are equally potential factors or parents of first functional discrepancy and then of disease. The proximate natural cause is delinquent tissue (cell) function. When this type of patient comes for your care, it is likely he has consulted many others and let the auspicious opportunity of anticipated help unwisely escape.

The lymphatics are the conservators and the glands the watchmen scattered here and there to control, by warnings, any interference with the natural physiologic action, or the initial balk in lymph function. This system, on account of its sure and before-danger signaling, makes it take the lead in importance. If it acts, we stay well. If it shunts in any respect, we get sick. To be immuned against cancer we must have a perfectly working lymphatic exchange. Pure blood in unimpeded flow is nature's priceless home-guard against all vagrant, inimical tissue and other physical con-

ditions, local or systemic; the lymphatics, in my mind, are the trusted sewers and the lymph nodes the wideawake signal warning stations. Interrupt the energies of either and you block efficiency, or do worse—bring on disease. First, the environment; then the cell affections; and, by generification, the subsequent degeneration is generalized.

We feel that the greatest hope for the future development of means to prevent or cure cancer lies in the perfection of means for the induction of regional sterility. This, interpreted, urges that we must be keen to detect the initial, inducing evidence of the incipient local or localizing incapacity. We now have convincing proof of many external local changes which point to future cancers and we are endeavoring to make these visible marks of knowledge lodge in the minds of the people and to induce them to act early and confidently in having these ocular warnings removed. *"The better part of safety is discretion."*

Practically, from bedside knowledge, I am inclined to the opinion that cancer is conditioned on a modified lymph gland action, or due to a disordered lymph, and that the disappearance of these conditions must be entrusted to the conveyance exits furnished by the lymphatic route. To meet this specific requirement, we must impress the basic fact that the prime factor of evil lies, first, in the manner we prepare and take our food; second, the way we masticate it; and the habit of excess filling just because it carries a beckoning relish, is to be guarded against. Better by far to eat too little than to consume more than the system needs, for in the former case the emunctories are rested, grow stronger and we are given a chance to renovate and keep clean. A thoroughly working sewer system seldom affords points suited to the lodgement of irritating or menacing changes leading to cancer.

Applied to health, economy means elimination of the waste in the body tissues, the blood and lymphatic channels which incite to local and systemic defection, the sure forerunner of disease, *unless corrected early*. Any detention or retention of body refuse will eventually cause irritation somewhere, and this irritation will manifest its presence at the weakest or most vulnerable point, and, if prolonged, is certain to annoy or do worse.

The consumption of much meat must be con-

sidered harmful; it is unfavorable to long life, nor is it necessary to sustain either mental or physical vigor or animal heat. Besides it is a fact that when we eat meat we take into our systems animal waste products, substances which become poisonous in the human body, unless they are cast out readily and fully. So it is plain that an extra tax is occasioned on the lymphatic machinery, and, if not removed, we must suffer the consequences. Almost certainly there is clogging of the circulation. The excess fullness overtaxes not only all the principal organs, but inevitably similarly freights the lymphatics. In other words, it aids to make life a continual "Blue Sunday" because it disturbs osmotic force. Nor should we forget or overlook the present-day demineralized and devitaminized cereal foods, flour particularly, which does not nourish, but forms noxious gases, which in turn poison the human system, expressing themselves in many devious ways. These upset the metabolic processes, and disease results. These gases, we are led to believe, by inhibition, or otherwise, are largely the precursor pioneers of the cancer settlements, through selective action. This is a plausible inference and may be found to rank higher as a causative factor. Our faint attitude towards cancer has in the past enervated us like "spiders in the vault their many webs have spread."

An inquiry was made of the Metropolitan Life Insurance Company of New York, to settle the notion that possibly the fats consumed by ice-bound people had some influence in immunizing them against cancer and that the disease in other sections took hold on the lean more frequently than the obese. Information received from them shows the opposite conditions and therefore leaves iodine as the tentative potent immunizing agent—until further light sustains or nullifies its assumed virtue.

J. W. Turrentine, Ph.D., U. S. Department of Agriculture, Washington, D. C., says in substance: "On account of the iodine deficiency in our foods the majority of the populace suffer from some degree of thyroid derangement." He has demonstrated that iodine can be furnished such persons by feeding them on certain marine plants or seaweed, which are accompanied by a series of sea-salts and other mineral elements essential as body constituents whose absence may give rise to other deficiency

diseases than goiter.* This only helps to confirm the view I have always held that iodine is a necessary ingredient of the perfect diet, and next to water it is the cardinal ingredient in warding off all or nearly all deficiency diseases. It is the inciting force that directs and maintains the human house-cleaning.

A logical agitation of the matter through the ardent effort of many contrary opinions is the only way to focus the light that will avert this one human woe.

"Accuse not nature! she hath done her part;
Do thou but thine."—*Milton*.

When research discovers the secret of cell immunity cancer will cease to trouble us. This is my point of view. Let us have fusion of interest and effort.

Local cancer is easily avoided, just as tuberculosis is. These days, any one who is so remiss in care for himself and family as to have either, gets only what he deserves brought on himself. This is established fact.

THE SURGICAL RELIEF OF CERTAIN PAINFUL CONDITIONS.*

By HARRY HYLAND KERR, M. D., C. M., Washington, D. C.

The realm of modern surgery has enlarged greatly since its birth with Lister's discovery in 1865. Every region and cavity of the body has been invaded. Now general surgery is fast being split up into many specialties. Perhaps the latest and most interesting of these is that branch devoted to the surgery of the nervous system. Many of us think of neurological surgery as the surgery of tumors of the brain or of fractured skulls, but I am tempted to call your attention to the various surgical procedures on the nervous system that may be of great value on certain painful lesions not otherwise easily relieved.

Pain is the most outstanding symptom met with in all the field of medicine. It is Nature's call for relief and demands immediate response. It is transmitted to the cerebral cortex by the sensory nerves of the central nervous system. It may be transmitted by the sympathetic system. Visceral pain is undoubtedly so transmitted. The sympathetic nerves are the only ones found in the viscera and must transmit the pain which is so common a symptom of visceral disease. There is growing evi-

dence that peripheral pain from the limbs may be in part transmitted by the sympathetic system. At least, severance of the sympathetic pathways to a limb may abolish certain types of pain in that limb.

The surgical relief of pain necessitates surgical attack on the pain pathways. The severance of the sensory tract leading from the affected nerves to the cerebral cortex is demanded. Interference with the pathways distal to the lesion is futile. Thus resection of the peripheral nerves leading to an area at which pain is felt in a case of spinal cord tumor has no effect on the pain. This is true of all types of pain but one. Paradoxically it is not true in tic douloureux. Here the successful injection or the severance of the affected branch of the ganglion in which the pain is felt, gives immediate relief. The relief only lasts, however, until the particular branch regenerates. Then all the pain recurs, often in an exaggerated form.

The cure of tic douloureux is one of the most brilliant contributions of neurological surgery. The diagnosis is usually easily made. The patient is in the fifties or sixties and tells the characteristic story of attacks of stabbing, lightning-like pain over the distribution of one of the branches of the gasserian ganglion, over the forehead, in the cheek and upper lip, or in the jaw. The attacks become more frequent and more severe until all the branches of the fifth nerve are affected and the patient is reduced to a pitiful state. He cannot talk or eat for fear of starting an attack and begs for relief. There are many other types of pain in the face and their differentiation from true tic douloureux may be difficult. The therapeutic test of nerve injection will however clear up the question. If the complete blocking of the fifth nerve branch to the painful area relieves the pain, the diagnosis of tic douloureux can be made with certainty. Complete relief of the agonizing pain can be obtained by two surgical procedures, injection of the affected branch with alcohol, or division of the root of the ganglion. Though the first is much easier and much simpler and is usually selected by the patient, the relief is only temporary and the procedure has to be repeated.

The operation of the division of the ganglion root has now reached a place of near perfection. The risk is no longer what it was when the ganglion itself was avulsed and the

*International Journal of Surgery, April, 1924, page 184.

*Read before the meeting of the Walter Reed Medical Society, at Williamsburg, Va., May 27, 1925.

mortality should not be greater than 1 or 2 per cent. The skull is opened through a small trephine opening under the temporal muscle. The dura is stripped up from the base of the skull till the ganglion is reached. The root is divided or avulsed with little risk. I advise all my patients to be operated on, but most of them demand injection at the first visit. When their pain returns and they submit to operation later, they always regret not having followed my suggestion of operation at first. They must be told of the anesthesia that will ensue and should be warned of the danger to the eyes and the necessity of wearing goggles in the open air for several months. I always put each case in the care of a competent ophthalmologist who follows their progress for at least six months. There are no more grateful patients than those who have been cured of the torture of *tic douloureux* by resection of the ganglion root.

The most outstanding type of peripheral pain is the so-called *causalgia* of Weir Mitchell. Fortunately it is rarely seen in its true and fulminant type. In 500 cases of peripheral nerve injury under my care at the Walter Reed General Hospital after the War, I saw only one true case. I will never forget the picture of the thin, emaciated soldier huddled under a blanket on a stretcher and holding his wasted right hand with his left. He had not slept naturally for months and was in too great agony to eat or think of anything but his pain.

There are, however, many so-called cases of *causalgia* of much the same etiology but of much less severity. In partial lesions, especially of the sensory nerves, as the median, pain is a prominent symptom. It may be slight but constant, or it may be severe enough to affect the general health of the sufferer. As these partial lesions slowly but steadily proceed to a spontaneous recovery, the pain gradually subsides. When it is severe and in cases of true *causalgia*, only one course is to be recommended. The nerve should be divided proximal to the lesion, and immediately resutured. Neurolysis or alcoholic injections are only a waste of time. Here again, surgical relief is magical.

When the pain arises outside the nervous system and is not amenable to surgical attack on the lesion itself, cordotomy is of great value. The older operation of division of the

posterior roots will, I believe, be supplanted by this valuable operation. In cases of irremovable tumors, especially involving the lower spine, also in cases of spinal injury involving the *cauda equina*, and in the crises of *tubes*, it is indicated. Frazier has shown that the anterolateral tracts, the principal ascending pain pathway of the spinal cord, can be divided with complete relief of pain and without affecting the other tracts of the cord. Through a high laminectomy, the anterolateral tracts of the spinal cord are severed with a small knife.

The sensation of touch and the thermal sense is not abolished, but all painful stimuli are completely cut off from the sensorium.

In recent years the sympathetic nervous system has attracted the attention of the medical world and, as in other fields, surgery has helped to unravel some of its mysteries. Hunter and Royale have shown that the sympathetic nerves have a part in the enervation of muscle. In selected cases of spastic paralysis much improvement is claimed to be obtained by surgically severing the *rami communicantes*, between the sympathetic cord and the peripheral nerves to the affected limb.

Another function of the sympathetic system is the trophic control of the periphery.

In Raynaud's Disease, when symmetrical gangrene, accompanied by pain, is the characteristic symptom, relief is obtained by the so-called *Leriche Operation*. The main artery of the limb is exposed and the adventitia is dissected off the vessel for a distance of several inches. As the sympathetic fibers pass in the adventitia, its removal cuts off the distal parts from sympathetic control. Complete relief of pain is thus brought about with the arrest of the gangrene. Leriche advocated his operation for relief in other painful lesions such as the so-called *causalgia* referred to above and in intermittent claudication. The results, however, have not borne out his early hopes.

Raynaud's Disease, scleroderma and erythromelalgia are apparently the most susceptible lesions to this procedure. There is produced by sympathectomy a definite effect on the capillary circulation. It has been shown that the temperature of the part is elevated and the capillary circulation definitely increased. This effect is enhanced when the *Leriche Operation* is combined with division of the *rami-*

communicantes. In a recent case of endarteritis obliterans, when a simple Leriche operation had failed to help on one side the combined Leriche operation and the Royale operation brought cessation of pain and prompt healing of the ulcers. These procedures probably act through paralysis of the vasoconstrictors. The contraction of the vessels is prevented and increase in blood flow to the part is enhanced.

The control of the vasoconstrictors by the sympathetic has recently been applied to the surgical relief of angina pectoris. The rationale of the operative procedures used is based on Sir Clifford Allbutt's theory of the nature of angina pectoris. Contrary to the older teachings, he believed that the disease is primarily in the first portion of the aorta and that the heart itself or its coronary arteries may be entirely uninvolved. The characteristic lesion is an aortitis involving the outer, rather than the inner coats of the vessel. Through the nerve fibers of the cardiac plexus, the aortitis sets up a reflex spasm of the aorta when subjected to strain. The root of the aorta first feels the brunt of increased heart action and the nerve fibers in its adventitia are irritated. Through the afferent nerve tracts this irritation stimulates the centers in the cord or the medulla. Through the efferent fibers the muscular walls are thrown into contraction. The subjective manifestation of this spasm is the agonizing substernal pain referred down the left arm. It is probable that the pain always accompanies a contraction of the vessel. The attacks can be arrested and relief obtained if the vessel is made to dilate. Clinical experience indorses the theory, in that the most efficacious drugs used during the attacks are the vasodilators as nitroglycerine and amylnitrite. As these drugs relieve the attacks, surgery has attempted to prevent them. As the attack is the manifestation of an aortic spasm, the result of a physiological reflex, it can be prevented by dividing either the efferent or the afferent fibers of the reflex arc.

The heart is enervated by the superficial and deep cardiac plexuses with their branches, the anterior and posterior coronary plexuses. The superficial cardiac plexus is made up of the left superior cardiac nerve from the left superior sympathetic ganglion and branches from the vagus and filaments from the deep cardiac plexuses. It is distributed to the base of the aorta, the atria, and the anterior

coronary plexus. The deep cardiac plexus is made up of other cardiac nerves from the right and left sympathetic ganglia and the vagi.

A greater part, if not the greatest part, of the nerve supply of the root of the aorta is from the superficial cardiac plexus. The sympathetic portion of this plexus comes principally from the left superior cervical ganglion through the left superior cardiac nerve. This nerve, therefore, plays a large part in the sympathetic enervation of the first portion of the aorta.

The depressor nerve is considered an afferent nerve of the heart. In the rabbit it occurs as a separate nerve, but in man its anatomical identity is not clearly made out. Hofer, in describing his operation of the division of the depressor nerve for the relief of angina pectoris, advises the resection of all branches of the vagus and superior laryngeal nerve passing into the thorax. Stimulation of the depressor nerve uniformly causes a drop in blood pressure in experimental animals. If it acts in the same way in man it is probable that the depressor nerve is included in the human vagus sheath, since irritation of the vagus near the base of the skull produces the same phenomenon. Division of either of these nerve tracts, the sympathetic or depressor nerve, would theoretically interrupt the reflex arc connecting the heart with the central nervous system.

Francois Franck suggested division of the sympathetic nerve tracts to the heart for the relief of angina pectoris. Wenckebach suggested division of the depressor portion of the vagus with the same object in view. Both procedures have been carried out in a limited number of cases with results encouraging enough to tempt us to continue our surgical efforts to relieve this terrible malady.

I reported eight cases before the American Surgical Association operated on by the so-called American operation, that is, superior cervical sympathectomy under local anesthesia, in contra-distinction to the Jonnesco operation of removal of the entire cervical sympathetic chain. My experience with the study of some sixty cases from the literature leads me to believe that this simple operation which has no risk and leaves little or no disability is eminently worth while.

1744 N Street.

THE ROLE OF NUTRITION IN TUBERCULOSIS PREVENTION.*

By AGNES D. RANDOLPH, Richmond, Va.
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It is with somewhat of a painful pleasure that I am with you this morning. I appreciate the compliment implied in your invitation; yet such is my respect for the word science, that I feel quite humble. The only contribution I can hope to make to your deliberations must be drawn from observations in a field in which knowledge is as yet imperfect, and in which the beliefs of today must be ready for disavowal in the light of tomorrow's discoveries.

The word "nutrition" is used in this paper in its actual meaning, and refers to "proper food for tissue building." There is a method for dealing with the conditions of malnutrition which is widely discussed under the term "nutrition work." This method includes correction of physical defects, discipline, proper rest, proper food, and proper hygiene. All of these factors are essential if we are to establish balanced metabolism, and any method for securing proper nutrition must include them all. The nutrition class method is a valuable contribution to health work. Fully appreciating the implications and importance of the other factors, I shall, however, exclude from our consideration all factors concerned in the method, save food alone.

The problem of nutrition is of paramount importance in the campaign against tuberculosis because of the very nature of the body's method of combating the disease. It is now recognized that 75% of tuberculous infection occurs prior to the fifteenth year, whereas the highest disease-incidence occurs much later. As soon as definite infection takes place, the body endeavors to wall off the bacilli behind a calcified barrier. Whether or not this barrier holds is in large measure dependent upon the stamina of the individual—what we call the power of resistance. Many factors tend to lower this defensive power; worry, lack of mental discipline, overwork, concurrent illnesses, and so on. The strain of life is a force which hammers and hammers against the barriers; when the force becomes too strong, the wall is broken, out sweeps the enemy, and disease begins. Everything, therefore, which tends to keep the body strong in its defense line is a preventive agent. Among the other

factors, those which build body tissue, or are fundamental in maintenance of body metabolism, are, naturally, of chief importance. Among these, fresh air, without which metabolism cannot be maintained, and food, are the two essentials.

Since infection occurs in childhood, tuberculosis enters when the organism is already burdened with the necessities of body growth. It must select from the food the calcium for wall-building, and from it, also, must be drawn materials to develop the defensive power for disease resistance. Throughout life the latter requirement continues. Knowledge of foods and their functions is power against disease.

The first scientific ideas regarding diet were based upon knowledge of the chemical elements of food and the chemical demands of the human body. Since in energy expenditure and tissue destruction, certain chemical elements were altered or lost, a diet which replaces these elements will maintain the body at a uniform average. This thought gave confidence in proteids, carbohydrates, fats, and mineral salts as the only essential factors in food. This belief held almost undisputed sway for more than half a century. Diets were organized on the theory that proteids were required for tissue building; carbohydrates for energy production; fats for heat; and mineral salts for various essential body functions. Not until after 1900 was it suspected that the proteids differed in metabolic value.

By 1900 one important modification in diet teaching had been developed. By exact experimentation with the calorimeter, Atwater and others had determined the caloric food values necessary to supply energy requirements under several varying conditions. The basal metabolism requirement for a man of average weight, from 150-160 pounds, was found to be approximately 1,680 calories in 24 hours. The caloric requirements under conditions of muscular activity, with differences as slight as those between a reclining or a sitting posture, were demonstrated. Moderate work raised the basal metabolism requirement of the same individual to 3,000 calories in 24 hours; while hard manual labor made the total energy requirement as high as 5,000 calories. The caloric requirements during the period of growth were more difficult to estimate, and have been variously placed. For growth alone, excluding metabolism, five to ten food calories per pound

*Read before the Virginia Academy of Science, May 2, 1925.

of body weight, is considered to include a margin of safety. Dr. Taliaferro Clark, of the United States Public Health Service, has said, "The total caloric requirement of children of both sexes during the adolescent period is approximately one thousand calories greater than that of grown men or women."

For several years the caloric food value, together with sufficient protein intake to replace body tissue, was considered the whole story. Shortly after 1900, experimentation with animals to establish whether a single food stuff or a varied diet gave better growth and nutritional results disclosed the fact that with a diet perfect from the chemical and caloric standpoints, cattle not only failed to thrive, but actually died. These experiments clearly demonstrated the presence of substances other than those which had already been analyzed in the four major food constituents. Funk, in 1910, experimenting with polished rice as the cause of beri-beri found that the disease was prevented by feeding the husk of the grain, and stated that there was evidently some substance not yet isolated which existed in the bran layer and which protected against the disease. To this substance he gave the name "vitamine."

Animal experimentation immediately followed, and in 1915 McCollum and Davis recorded their findings with butterfat and egg yolk. Within a few years, Fat Soluble A and Water Solubles B and C were demonstrated, and others are dimly discerned. It is now known that lack of Water Soluble B not only causes neuritis, but also greatly lowers the vitality. Water Soluble C prevents scurvy and greatly aids in resistance to disease. For our purpose this morning, Fat Soluble A is perhaps of most interest, since lack of it not only prevents growth but interferes with the mineral, particularly the calcium, metabolism. It is, too, a factor in creating disease resistance.

As each of these discoveries in food composition—the chemical content, the caloric value, and the presence of unisolated substances named "vitamines"—has been made, the tendency has been to overlook the importance of the preceding steps towards knowledge of the science. Such a tendency is to be deplored. The development, as is usual in scientific evolution, has been a process of steps and unfolding. The knowledge of yesterday has its place in the whole just as much as has the knowledge

of today. It is unscientific to emphasize one set of facts, and to ignore another.

Since Fat Soluble A was early shown to influence the calcium metabolism, one would naturally hope to find that further experiments had demonstrated its power in tuberculous disease. Unfortunately, however, all animal experiments so far reported have been negative in their results. Experimental work on infected guinea pigs failed to prove cod-liver oil "definitely beneficial either as regards weight curve, length of life or extent of the disease process." It is interesting to note the presence of Fat Soluble A in milk, egg yolks, and cod-liver oil, each of which has at different times had great vogue in the treatment of that disease. There seems to be a body of clinical evidence that Fat Soluble A, together with calcium, is beneficial in the early stages. Common sense suggests that this should be so. Experimentally it has not yet been demonstrated. It may be found, as has been suggested, that an agent having beneficial effect in the non-tuberculous organism becomes useless in the tuberculous because of the overwhelming nature of the infection.

Regarding diet Dr. Pottenger says, "What we would like to find out for the tuberculous patient is, does he have any specific requirements; are there any forms of diet that will aid him more than others in overcoming his disease? The question is one that so far has not been properly answered."

Although the question of diet as a determining factor in the cure of tuberculosis has not yet been answered, its place in the prevention of disease can with some accuracy be defined. It would be unwise to speak with finality in a science which has seen such amazing discoveries within a decade, yet sufficient experimental evidence is available to assure us that a secure starting point has been reached. The general application of our existing knowledge regarding the essential content of diet for body growth and disease resistance should give startling results in the prevention of tuberculosis in the next generation.

Any effort to apply scientifically balanced diets for this purpose would have to begin in the group of children now suffering from malnutrition. In this group are to be found the majority of our future consumptives. An "optimal" dietary for these children would include a sufficiently high protein value to carry

on the regular functions of the organism and, in addition, to repair and to build the child's body. The caloric value would have to be sufficient to conduct the business of the body while the process of growth was proceeding, and, in addition, to supply fuel for the excess energy always manifested by the normal young. The vitamine content would have to be sufficient to promote growth, to ensure mineral metabolism and disease resistance. Mineral salts for essential functions would have to be assured. It is of interest to see how far such a diet is now utilized for the benefit of the malnourished. The data our Board has available is not sufficiently detailed for scientific use, yet it may give valuable indications.

During the past year, our nurses filed fifty-seven weekly reports of nutrition classes of twenty or more children. The low daily caloric value of the diet of these children was a surprise. In only one of the ten classes conducted by us was the average caloric food value as high as 2,200 at the time of the first class period: 31 of the 57 reports showed that the diet of one or more children had a caloric value under 1,500. Two children were reported on a diet under 1,000 caloric value. The average for all classes was only 2,436, in spite of the fact that in each class the caloric value crept up steadily throughout the four months of class instruction.

An effort to ascertain the vitamine content of the diets was complicated by the fact that the investigation was begun after the children had had sufficient class work to influence their food choice. Only one investigation was begun sufficiently early in the work to be uninfluenced by detailed instruction. Here it was found that in a class of twenty-two children, only seven drank milk; that none of the class had green vegetables with any regularity; and that none had fruit. They were, therefore, practically without the foods in which the vitamins are sufficiently concentrated adequately to furnish a growing body.

These classes were held in consolidated schools; and the children, because of the area covered by the school, often started from home at eight in the morning and returned somewhat after four in the afternoon. Provisions for hot food were made in only two schools, and in none was there supervision of the children's lunches. These facts induced several injurious diet factors. Insufficiency and irregularity

were added to the factor of monotony caused by the lack of provision for green foods for winter use on the farms. Loss of appetite, produced by the condition of malnutrition, combined with these several injurious factors incident to school life, caused a vicious circle. McCollum has said, speaking of the results of much less seriously unbalanced diet in young animals, "Adherence for even a brief period of a few days or weeks to a diet which is unsatisfactory in some degree, leads to deviation from the normal histological structure of the osseous, the nervous, or the circulatory tissues, depending upon the nature and extent of the faults in the food." Conceding the greater length of the life cycle in the human race, such faulty dietaries as have been found in our rural population must indeed seriously affect the body structure. The evidences of such effects were plain to see in the misshapen bodies and pale faces of the children in the nutrition classes. It was apparent that among these children, food had not been used with sufficient intelligence to promote normal growth. For our general population the distance from the "normal" diet which permits the development of a normal body structure, to an "optimal" diet, which will give a well-developed, vital, disease resisting organism, is a long one.

The extent of malnutrition among our children makes the problem exceedingly difficult. In four schools in which the State Board of Health last year weighed and measured all the pupils, one-third of the children were seven per cent or more underweight. A careful physical examination of the children of normal weight disclosed the fact that fifty per cent of the group showed the signs of malnutrition—flabby muscles, slight curvatures, and so on. These findings unfortunately tally with more extensive investigations conducted elsewhere. In the correction of such conditions, two official bodies are vitally interested, the Boards of Education and of Health. In the former, a small force of 67 domestic science teachers are the advance guard of what should be developed into an adequate state-wide force. In the Board of Health, the Bureau of Child Welfare is continuously active and the force of the Tuberculosis Education Bureau conducts intensive work during winter months.

It has been charmingly said that "The forward and upward march of all knowledge, of all science, depends on the discovery and per-

fection of method." It is true in nutrition. The only method already devised is, while effective for city work, far too costly and too complex to succeed among our rural population. The successful method must, of course, rest upon a foundation of informed and educated individuals. We have apparently reached only the first stage: acquisition of certain accurate knowledge, investigation of existing conditions, and experimentation with method.

In closing, I wish again to state that no one factor, whether it be proper hygiene, proper rest, or proper diet, will by itself produce a normal organism. Discoveries in nutrition, however, are so recent and so revolutionary that emphasis must at this time be placed upon its function in building and maintaining a strong, vigorous organism, well equipped for disease resistance. Such an organism would, when tuberculosis infection occurred, readily handle it, walling it off behind calcified barriers, and frequently completely destroying the bacilli. Disease resistance produced by the development of such vigorous, vital organisms would continue high throughout life. When the strain of life grew strong, powerful forces would be prepared to meet it. Success in the field of teaching nutrition will mark a long stride forward in the conquest of tuberculosis.

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State Office Building.

ANALYSIS OF EIGHTY-FOUR DELIVERIES.

By HAROLD NEIFELD, M. D., Brooklyn, N. Y.

From the records of the Holy Family Hospital the following statistics and conclusions have been compiled. They are presented for whatever of value or interest they may have for the practitioner.

One maternal death occurred in an Italian primipara who had entered the hospital with a potential infection, having been examined vaginally in her home ten or eleven times by a midwife and several times by a physician. In her case labor commenced on October 30, 1924, and as labor had not progressed on November 2, 1924, it was decided to terminate the pregnancy mechanically despite evidence of infection. She had a contraction ring that would not relax under ether, and, upon cessation of the fetal heart sounds, craniotomy was performed. The patient died ten days later of embolic pneumonia. The other maternal death was in an old cardiac that had been treated for that affliction by an internist during her entire pregnancy. An attempt was made to terminate labor by forceps, and, though she was delivered of a normal baby (that is living now), she died on the table. Not only was this patient a chronic cardiac, but, in addition, this was her first delivery at the age of thirty-five.

Of the fetal deaths one was the craniotomy case mentioned above. Another a premature infant of seven months, weighing four pounds and two ounces. A third was a breech in which the aftercoming head was delivered with great difficulty. (This occurred in a grvida

TABLE I.

	No.	SEX		DEATHS		Twins	Av. Labor	For-cep	Pla-cen-ta Prae-via	PP. Hem.	Cord Around Neck	Fe-tus Pap-yraceus	Ma-cera-ted Fetus	Con-trac-tion Ring	Cra-niot-omy
		Male	Fem.	Fe-tal	Mat.										
Multipara.....	48	24	25	3	0	2	10 $\frac{1}{2}$	2	0	0	4	1	1	1	0
Primipara.....	36	19	20	2	2	2	14 $\frac{1}{2}$	2	1	1	5	0	0	1	1
Total.....	84	43	45	5	2	4	hrs.	4	1	1	9	1	1	2	1
Total per cent.....		49	51	5 $\frac{1}{2}$	2 $\frac{1}{3}$	4 $\frac{1}{2}$									

two that had been delivered the year previously of a dead forceps baby). The fourth case was that of a woman who had had five miscarriages. The fetus was macerated; but in spite of this history, a saddle-back nose, general glandular enlargement and type of woman, repeated laboratory tests were negative for lues.

Three of the four sets of twins presented single placentae, two sets of which were males, one set females. The fourth set of twins was followed by the expression of a double placenta; and in this instance the twins were of different sexes. For some reason not ascertained, the female died shortly following delivery. In one of the single placentate cases the presentations were R. S. A. and L.S.A. in another L.S.A. and R.O.A., in the third R.O.T. and R.O.P. In this last forceps were applied to the R.O.T. fetus, converting it into an R.O.A. and delivering it with two tractions of the blades. The R.O.P. fetus was delivered by version and extraction.

Application of the forceps in one instance showed a maternal death (cardiac case referred to above), in another a fetal death. Two other mothers were delivered by its means of normal living babes with no fetal or maternal mortality.

Though one postpartum hemorrhage is here recorded, yet none has ever been listed at the Holy Family Hospital in any event where the medical man has observed the house rule of waiting at least fifteen minutes before attempting to express the placenta. In the case cited, the physician attempted expression a few moments following delivery.

Nine babies were born with coils of the umbilical cord about the neck. In one infant there were two coils wound round its neck; in another the cord was loosely knotted. There was neither maternal nor fetal mortality.

Following the expulsion of a well-formed,

living, six pounds four ounce female a multipara expelled the placenta with a typical fetus papyraceous. A sister of this patient was delivered of a baby with hemorrhagica neonatorum. The baby bled from all mucous surfaces. Maternal blood was injected subpectorally and intra-abdominally. The result was a live child, the bleeding having ceased completely in twenty-four hours. (The infant had also been given grain five calcium lactate q. 4 h., alcohol minim ten q. 4 h., and diluted milk).

One of the two patients who presented a contraction ring that did not relax under ether had a craniotomy performed (mother was infected) on the fetus; in the other, which also did not relax under ether, administration of the chloroform produced complete relaxation with no mortality to mother or child.

Four of the women seen in the outpatient department before active onset of labor had blood pressures of over 200 systolic, and were carried safely through labor by bleeding, diet and rest.

The average weight of male children was 7.7 pounds, of the females 7.3 pounds.

The average weight of babies with first degree lacerations was seven pounds eight ounces, of babies with second degree lacerations eight pounds four ounces, of babies with third degree lacerations seven pounds eight ounces. All patients with lacerations in whom babies weighed less than seven pounds had labors all over eighteen hours long.

No case of pelvic infection in a pregnant woman was seen by the observer in the institution during the period of eight months that he had been connected with it, except in those that had previously been examined vaginally outside its walls. No vaginal examinations are permitted except for some special indication.

TABLE II.

Presentations			Deaths		Lacerations		
	Number	Percent	Fetal	Maternal	First	Second	Third
LOA.....	41	47	2	1	9	4	0
ROA.....	28	32	1	1	9	2	0
Breech.....	12	14	2	0	3	3	1
ROP.....	3	3	0	0	1	0	0
LOT.....	1	1	0	0	0	0	0
ROT.....	1	1	0	0	0	1	0
LOP.....	1	1	0	0	1	0	0
RMA.....	1	1	0	0	0	0	0

TABLE III.
Lacerations*

	Primipara	Multipara
First Degree.....	8	16
Second Degree.....	6	4
Third Degree.....	1	1

*Of the primiparae 3 of the 8 with first degree lacerations bore children with coils of the cord around the neck; of the 6 with second degree lacerations 2 were forceps cases and one a breech; the third degree laceration case was a forceps.

The 16 first degree lacerated multiparae had numbered among them 6 with old scars that reopened, 2 with coils of cord around the neck and one breech; while there were one forceps and two breeches (one of these had the aftercoming head delivered with marked difficulty) among the four second degree lacerated multips; and the multipara with the third degree tear was a high forceps.

SUMMARY

1. Vaginal examinations are dangerous. Use abdominal palpation and finger rectally.

2. Contraction ring cases that do not relax under ether should be subjected to chloroform.

3. The longer the labor the greater the liability to laceration; the heavier the baby the greater the liability to laceration; instrumentation produces laceration; abnormal presentation increases the liability to laceration; lacerations occur in about the same percentage in primiparae as in multiparae.

4. Single placenta twins are of the same sex; double placenta twins of different sexes. Twins produce abnormal presentations in about 75 per cent of the cases.

5. Fetal deaths increase with abnormalities, i. e., contraction ring, premature deliveries, breech presentations, etc.

6. Postpartum hemorrhage can be avoided

by waiting at least fifteen minutes before attempting to express the placenta.

7. Hypertension cases can be successfully carried through labor by bleeding, diet and rest.

8. Male children at birth weigh slightly more than females.

9. A slightly greater number of females are born than males.

CONCLUSION

Most of the salient points in the above summary are merely confirmatory of those of the recognized authorities in obstetrics, a few are in contra-distinction to their teachings; yet it is hoped that this report will stimulate similar ones from the smaller clinics. In this way we can see how the results in the lesser lying-in institutions compare with those of their big sisters.

243 Hewes Street.

School Insurance, Switzerland.

Compulsory insurance of school children, established within recent years in various Cantons of Switzerland, was recently adopted in the Canton of Geneva. The law provides for compulsory insurance against disease and accident for all children from three to fifteen years of age attending kindergartens or public schools. The insurance fund pays three-fourths of the cost of medical care for the children and of maintenance in the country when required. The resources of the fund comprise the premiums paid by the parents and subsidies from the Federal and cantonal governments.

Correspondence

No Reduction in Railroad Rates for Richmond Meeting.

TO THE EDITOR:

It will be noted, in review, that we were given reduced rates to the Norfolk meeting, after extended correspondence resulting in less than one hundred of the required number to give us these rates under the railroad rules. By the greatest effort, we were given another trial with reduced rates to the Roanoke meeting. As chairman of the Transportation Committee, I urged every doctor attending to buy a ticket giving the reduced fares, and those having passes to buy tickets for their wives and daughters, as this was to be a final test to get the required 250 tickets which guaranteed reduced rates in the future. I was disappointed at results, for I found many doctors at the meeting who never asked for the reduced fares, and every one who had a pass, got others for their families, and, as a result, about sixty-five tickets were sold to Roanoke.

Seeing that we were not to get reduced rates directly to our members, I next urged meetings to be held at the same time Fairs were held in the largest cities, and thus get reduced rates for those doctors in the outlying part of the State; but while the Society at the Staunton meeting voted this be done, the Executive Council has reversed this act. Without reduced fares, the meetings are meetings of the surgeons of the railroads, and a few near the place assembled, and not the Medical Society of Virginia as it should be.

While attending post-graduate work (dermatology) in New York City, I arranged a conference with Mr. C. M. Burt, chairman of the Trunk Line Passenger Association. This embraces most of the eastern part of the United States and controls rates in most of our State. After running the gauntlet of several underling offices, I was given an audience with the chairman. I found him affable and sympathetic but only looking at the net result of various policies, in dollars and cents. I showed him how the railroad policy was dividing the profession into two camps, those for and those against the railroads. I did this after giving the former policy of giving us reduced fares at every meeting. He admitted the opposition developed in the medical profession, but he

stated that while they would lose by this opposition in our profession, yet, as there were so many other organizations in like position, the railroads would profit more by making no exception in our case. An hour's argument showing how it worked a greater hardship on us, failed to change his views and, as his will was law in the premises, I thanked him for his kindness and left.

As it is utterly impossible to ever get 250 doctors to buy tickets (so many who go have passes), again let me urge the Society to meet only in cities at Fair dates and thus give doctors in limited circumstances an opportunity to attend these meetings in the future. For those able to pay full fares, and those who have passes, to continue a policy that is derogatory to the great interest of the Society as a whole is selfish, if looked at straight and, if done without proper thought, is folly in the full meaning of the word.

Respectfully submitted,

J. BEVERLY DESHAZO,

Chairman of Transportation Committee.

Ridgeway, Va.

August 8, 1925.

Proceedings of Societies

The Medical Examining Board of Virginia

Held its regular semi-annual meeting in Richmond, June 23-26, inclusive, at which time ninety-eight doctors applied for license to practice in this State. Twenty were licensed by reciprocity, seventy-eight taking examinations. There were no failures. The bulk of those applying for licenses were from the Virginia schools, there being thirty-five from the Medical College of Virginia and twenty-five from the University of Virginia. Appended is the complete list of those who were granted certificates to practice in Virginia, with their addresses:

Dr. Sheppard K. Ames, Belle Haven, Va.
 Dr. Frederick T. Amiss, Luray, Va.
 Dr. Mallory S. Andrews, Norfolk, Va.
 Dr. Dudley C. Ashton, Richmond, Va.
 Dr. Maurice B. Bangel, Portsmouth, Va.
 Dr. Frederick P. H. Barrow, Portsmouth, Va.
 Dr. George Wythe Booth, Ferrum, Va.
 Dr. Thaddeus R. Bowers, Bristol, Tenn.
 Dr. Lemuel R. Broome, Charlottesville, Va.
 Dr. Fred A. Brown, Richmond, Va.
 Dr. Charles P. Cake, Charlottesville, Va.
 Dr. Roscoe D. Campbell, Abingdon, Va.
 Dr. J. Theodore Canaday, Norfolk, Va.

Dr. Adrian L. Carson, Jr., Richmond, Va.
 Dr. Douglas G. Chapman, Woodstock, Va.
 Dr. Creed F. Cherry, Norton, Va.
 Dr. John A. Coleman, Richmond, Va.
 Dr. Julian H. Coleman, Penola, Va.
 Dr. Anthony A. Colletti, Norfolk, Va.
 Dr. Robert W. Dailey, Jr., Romney, W. Va.
 Dr. Joshua M. Dougherty, Jr., Nickelsville, Va.
 Dr. Howard L. Dovey, Everett, Pa.
 Dr. John W. Durden, Herndon, W. Va.
 Dr. Ernest T. Eades, Roanoke, Va.
 Dr. Porter B. Echols, Glasgow, Va.
 Dr. Richard C. Eley, Charlottesville, Va.
 Dr. John B. Faison, Charlottesville, Va.
 Dr. Robert E. Feagans, Charlottesville, Va.
 Dr. Ora M. L. Fisher, Washington, D. C.
 Dr. John E. K. Flannagan, University, Va.
 Dr. Robert A. Follweiler, New York, N. Y.
 Dr. Haswell D. Franklin, University, Va.
 Dr. John Garner, Woodlawn, Va.
 Dr. Charles D. Garrett, Rocky Mount, Va.
 Dr. Robley R. Goad, Jersey City, N. J.
 Dr. Andrew S. Graham, Seattle, Wash.
 Dr. W. Randolph Graham, Richmond, Va.
 Dr. Andrew G. Grinnan, Richmond, Va.
 Dr. John E. Hanawalt, New York, N. Y.
 Dr. Vernon J. J. Harris, Richmond, Va.
 Dr. William T. Harris, Mt. Gilead, N. C.
 Dr. Elvin H. Hearst, Bristol, Va.
 Dr. Joseph C. Hiden, University, Va.
 Dr. Merritt M. Hill, Richmond, Va.
 Dr. John A. Hillsman, Jr., Richmond, Va.
 Dr. Joseph C. Inman, Jr., University, Va.
 Dr. Miletus B. Jarman, Elkton, Va.
 Dr. Eldred S. Jones, University, Va.
 Dr. William M. Junkin, Richmond, Va.
 Dr. Warren W. Koontz, University, Va.
 Dr. Edith J. Lacy, Vigor, Va.
 Dr. Martin Lasersohn, Richmond, Va.
 Dr. Robert G. LeFevre, Lancaster, Pa.
 Dr. Hymah P. Levin, Erie, Pa.
 Dr. Stanton K. Livingston, Greensburg, Pa.
 Dr. Adah A. Lotti, Charlottesville, Va.
 Dr. Maurice M. Lynch, Jr., Richmond, Va.
 Dr. Charlie F. Manges, Roanoke, Va.
 Dr. Walter F. Manley, New York, N. Y.
 Dr. Ashby G. Martin, Richmond, Va.
 Dr. Maurice S. Mathis, Baltimore, Md.
 Dr. Goldsboro F. McGinnes, University, Va.
 Dr. Clarence N. McPeak, University, Va.
 Dr. Edgar M. McPeak, University, Va.
 Dr. Omega L. Miller, Vienna, Va.
 Dr. Sannie G. Miller, Roseland, Va.
 Dr. Sally D. Moon, Charlottesville, Va.
 Dr. Dana T. Moore, Oakland, Md.
 Dr. E. Franc Morrill, Columbia, S. C.
 Dr. Roy L. Mullins, New York, N. Y.
 Dr. Frank E. Nelson, Richmond, Va.
 Dr. Harry S. Newman, Richmond, Va.
 Dr. Vincent H. Ober, Philadelphia, Pa.
 Dr. Paul E. Piper, Washington, D. C.
 Dr. Charles L. Plunkett, Richmond, Va.
 Dr. Thomas R. Pratt, Charlottesville, Va.
 Dr. George H. Preston, Richmond, Va.
 Dr. Charles L. Quaintance, Washington, D. C.
 Dr. James C. Repass, Jersey City, N. J.
 Dr. Wiley J. Rollins, Jr., University, Va.
 Dr. Robert H. Rowe, Exeter, Va.
 Dr. Joseph E. Rucker, Richmond, Va.
 Dr. W. Henry Sebrell, Jr., New Orleans, La.
 Dr. James W. Sinclair, Toronto, Canada.
 Dr. Gladys Smithwick, Catawba, Va.
 Dr. John T. Sprague, Warrenton, Va.
 Dr. Olga Steinecke, Keystone, W. Va.

Dr. Oscar Tagg, Cape Charles, Va.
 Dr. John L. Thornton, Washington, D. C.
 Dr. Brenton A. Tilghman, Cape Charles, Va.
 Dr. George C. Tyler, Abingdon, Va.
 Dr. George H. Warren, Jr., Richmond, Va.
 Dr. Samuel Weinstein, Richmond, Va.
 Dr. Alfred D. Wetherby, Andover, Va.
 Dr. Otis Wildman, Norfolk, Va.
 Dr. Hagan E. Wood, Bristol, Tenn.
 Dr. Edwin S. Woodyard, Richmond, Va.
 Dr. O. G. Allen, New York, N. Y. (in chiropody).

The Southwestern Virginia Medical Society

Opened its semi-annual meeting at Mountain Lake, August 27, with a banquet at 8 P. M., following which the president, Dr. F. H. Smith, Abingdon, and Dr. J. Shelton Horsley, Richmond, and Dr. A. H. Hoge, Bluefield, W. Va., read papers. Papers in the symposium on "Pelvic Diseases" were read the following day, as also were voluntary papers. At the business meeting held on the 28th, the following resolutions were adopted in memory of Drs. W. W. Chaffin, A. S. Ellett, M. G. Robinson, and A. E. Holmes:

Since God in His all wise providence has seen fit to translate from their earthly labors our beloved and esteemed brother physicians, Drs. W. W. Chaffin, Pulaski, Virginia; A. S. Ellett, Christiansburg, Virginia, M. G. Robinson, Wytheville, Virginia, and A. E. Holmes, Salem, Virginia, to their spiritual home—that home whence no traveler returns—BE IT THEREFORE RESOLVED:

FIRST—That we bow in humble submission to him who doeth all things well.

SECOND—That we extend the sympathy of the Society to the bereaved families and pray that God extend to them His mercy and sustain them in their sorrow.

THIRD—That this Society in their passing has sustained an irreparable loss.

FOURTH—That these resolutions be transcribed in the minutes of the Southwestern Virginia Medical Society, published in the VIRGINIA MEDICAL MONTHLY, and a copy sent to the families.

J. A. NOBLIN.
 C. F. GRAHAM,
 R. H. WOOLLING.

Committee.

Drs. A. M. Showalter, Cambria, E. M. Chitwood, Wytheville, and K. D. Graves, Pearisburg, were appointed delegates to the meeting of the State Society in Richmond.

The following new members were received: Drs. F. E. Hamlin, Roanoke; Sam R. McDowell, Blountville, Tenn. (associate member); C. D. Nofsinger, Roanoke; J. W. Miller, Pembroke; J. T. Hundley, Jr., Radford; A. B. Grubb, Cripple Creek; C. B. Ransome, Roanoke.

It was decided to hold the next meeting in Roanoke, the last week in March, and the following officers were elected for the ensuing

year: President, Dr. J. M. Miller, Crockett; vice-president, Dr. W. Caudill, Pearisburg; and secretary-treasurer, Dr. E. G. Gill (re-elected), Roanoke.

There were seventy-one doctors in attendance at this meeting.

Augusta County Medical Association.

At the regular meeting of this Association in Staunton, on the evening of August the 6th, no papers were read, but Dr. P. K. Graybill, Fincastle, Councilor for the Tenth District, was present and gave a talk. At this time, also, the retiring president, Dr. David T. Gochenour, of Stuarts Draft, tendered a banquet to the members and guests. There were about thirty-five members present. Dr. A. F. Robertson, Jr., Staunton, and Dr. Harry F. White, Fishersville, were appointed delegates to the Richmond meeting of the State Society.

Officers elected for the coming year are: President, Dr. J. L. Alexander, Staunton; vice-presidents, Drs. Charles W. Putney, Staunton, George Hollar, Waynesboro, and John E. Womack, Staunton; secretary, Dr. H. G. Middlekauff, Weyer's Cave; and treasurer, Dr. T. M. Parkins, Staunton.

At a called meeting of the Association on August 20, Miss Agnes D. Randolph, director of Tuberculosis Education, State Board of Health, gave a talk on "Methods of Conducting Tuberculosis Clinics in Rural Communities," and asked for the co-operation and support of the members.

The special purpose of this meeting was to discuss and consider proper steps for the betterment of dispensary service to the indigent poor of the city and county. After much discussion, a committee composed of Drs. Kenneth Bradford, A. L. Tynes and A. F. Robertson, Jr., was appointed to make investigations and to report at a later meeting.

The Patrick-Henry Medical Society

Held its regular bi-monthly meeting, Thursday, September 3rd, at the "Roundabout Club," near Martinsville. New officers elected were as follows: President, Dr. D. H. Mason, Ridgeway; vice-president, Dr. R. R. Lee, Martinsville; secretary-treasurer, Dr. H. G. Hammond, Martinsville.

Dr. J. M. Shackelford, Martinsville, was

elected delegate and Dr. J. A. Shackelford, also of Martinsville, alternate to the State Society meeting to be held in Richmond, October 13-16.

G. B. DUDLEY, Jr., *Secretary*.

The Truth About Medicine

In addition to the articles enumerated in our letter of June 30, 1925, the following have been accepted:

Eli Lilly & Co.

Diphtheria Toxin—Antitoxin Mixture 0.1L plus.

Typhoid Mixed Vaccine, Prophylactic and Therapeutic Schick Test, 50 test package.

H. A. Metz Laboratories

Neosalvarsan Dose XII.

Parke, Davis & Co.

Germicidal Discs of Potassio—Mercuric Iodide—

P. D. & Co.

Powers-Weightman-Rosengarten Co.

Bismosol

Bismosol Ampules 1 c.c.

NEW AND NON-OFFICIAL REMEDIES

Scarletinal Antitoxin (Unconcentrated)—Mulford. A scarlet fever streptococcus antitoxin (Jour. A. M. A., May 2, 1925, p. 1338). It is prepared from the serum of horses treated with subcutaneous injections of toxic filtrate from cultures of scarlet fever streptococci and also with intravenous injections of the streptococci themselves. Each c.c. neutralizes at least 10,000 skin test doses of scarlet fever toxin. Marketed in packages of one syringe containing 10 c.c. (prophylactic dose) and in packages of one vial containing 40 c.c. (therapeutic dose). H. K. Mulford Company, Philadelphia.

Scarlet Fever Antitoxin—Lederle (Unconcentrated).—A scarlet fever streptococcus antitoxin (Jour. A. M. A., May 2, 1925, p. 1338). It is prepared by immunizing horses by the subcutaneous injection of the toxic filtrate obtained by growing the scarlet fever streptococcus in broth; also by injection of cultures of the scarlet fever streptococcus. Each c.c. neutralizes at least 10,000 skin test doses of scarlet fever toxin. Marketed in packages of one syringe containing 10 c.c. and in packages of one cylinder containing 50 c.c. with an intravenous injection outfit. Lederle Antitoxin Laboratories, New York.

Insulin—Stearns 80 Units, 5 c.c.—Each c.c. contains 80 units of insulin—Stearns (New and Non-official Remedies, 1925, p. 174). Frederick Stearns & Co., Detroit.

Insulin—Stearns 80 Units, 10 c.c.—Each c.c. contains 80 units of insulin—Stearns (New and Non-official Remedies, 1925, p. 174). Frederick Stearns & Co., Detroit.

Tuna Fish Protein Extract Diagnostic—P. D. & Co.—A protein extract diagnostic—P. D. & Co. (New and Non-official Remedies, 1925, p. 289). Parke, Davis & Co., Detroit. (Jour. A. M. A., July 4, 1925, p. 35).

Leofund's Malt Extract.—A preparation essentially similar to extract of malt U. S. P. It is marketed as Leofund's malt extract with calcium (containing calcium lactophosphate 0.5 per cent.) and Leofund's malt extract with cod liver oil (Norwegian cod liver oil 33 per cent.), Britt, Loeffler & Weil, New York, distributor. (Jour. A. M. A., July 11, 1925, p. 115).

Neosalvarsan Dose XII.—Each tube contains neo-

salvarsan (New and Non-official Remedies, 1925, p. 50), 1.8 Gm. H. A. Metz Laboratories, Inc., New York.

Schick Test—Lilly.—Diphtheria Immunity Test (Schick Test), (New and Non-official Remedies, 1925, p. 50), is also marketed in packages of two vials, one containing diphtheria toxin sufficient for fifty tests and the other vial containing the proper amount of diluent. Eli Lilly and Co., Indianapolis. (Jour. A. M. A., July 25, 1925, p. 269).

PROPAGANDA FOR REFORM.

Listerine.—So far as the composition is concerned, the use of Listerine as a simple mouth wash is unobjectionable. Unfortunately the manufacturers are not content to recommend and advise it exclusively for the field in which it has a place. Listerine is exploited with an air of conservatism, even a statement of composition is given—which, however, is essentially meaningless. While the claims as to antiseptic efficiency and the claim that it is a deodorant (it is not a deodorant, but merely covers one smell with another), may in general do little harm when Listerine is used as a "toilet preparation," the advertising that accompanies trade packages contains recommendations for its use in serious conditions, the self-treatment of which is a danger to the individual and inimical to the public health. The potency for harm that these recommendations have, is all the greater because the manufacturers affirm that they "do not advocate self-medication, even with Listerine." The trade package circular recommends the use of Listerine in "tonsillitis"; this may easily lead to its employment in undiagnosed cases of diphtheria, and dependence on it in such conditions may be the means of spreading this infective disease. The circular suggests its use in "bronchitis," which may be tuberculosis or pneumonia. It recommends its use in "leucorrhea," which may lead to the self-treatment of a serious infection. The self-treatment of any such conditions is fraught with danger to the individual and to the community (Jour. A. M. A., July 4, 1925, p. 55).

Treatment of Snake-Bite.—The indications for the treatment of snake-bite are the same as those for any other kind of poisoning: namely, first to remove the poison, secondly, to remove its effects. Immediate interruption of absorption should be attempted by application of a bandage for a period. Removal of the poison from the wound after having enlarged it, by sucking, by washing, or by destruction by red heat or a caustic is the next thing to attempt. The third, most important remedy, is the injection of antivenom serum, which must be specific for the particular venom involved. (Jour. A. M. A., July 4, 1925, p. 57).

The Parathyroid Hormone.—The significance of a hormone elaborated by the parathyroid structures for the metabolism of calcium, at least so far as the relation of the content of this element in the blood is concerned, seems to be well established. The promise of preparing an effective parathyroid product seems about to be fulfilled in various places. The publications of Hanson, in 1923, show that he was actively engaged in the extraction of an active product. Since then success had attended the investigation of Fisher and Larson and particularly those of Collip. Both Collip and Fisher and Hanson warn against the possible dangers of unwarranted therapy with potent preparation, for symptoms of atonia depression, diarrhoea and dyspnea are readily produced by large doses of a potent preparation. (Jour. A. M. A., July 11, 1925, p. 118).

The Quantitative Accuracy of Medical Tablets.—Attention has been called repeatedly to discrepancy between the actual composition and the claims made for various tablets and pills sold to the medical profession. Variations as high as 54 per cent above and 70 per cent below the label statement of composition have been found. Two associations of pharmaceutical manufacturers have appointed a joint committee which collaborates with the government authorities in an attempt to bring about improved conditions. During the past years, attention has been given by this group to the composition of hypodermic tablets. As a result of this study, plans for controlling the degree of accuracy of hypodermic tablets have been issued by the federal Bureau of Chemistry, in which is given a maximal permissible variation, ranging from 7.5 to 9 per cent. The fact that the pharmaceutical industry collaborates with the governmental authorities in the establishment of standards is encouraging. (Jour. A. M. A., July 11, 1925, p. 118).

Rheumeez Not Accepted for N. N. R.—The Council on Pharmacy and Chemistry reports that "Rheumeez" (Casco Laboratories, Elizabeth, N. J., is claimed to be magnesium cinchophen, the magnesium salt of 2-phenyl-quinolin-4-carboxylic acid. From the advertising issued for the product, one gets the impression that the production of the magnesium salt of cinchophen is a noteworthy achievement on the part of the Casco Laboratories and that the product is superior to cinchophen. However, this compound is the analogue of the well known cinchophen-sodium. When a solution of Rheumeez is treated with dilute hydrochloric acid, cinchophen is precipitated: therefore the compound will be decomposed in the gastric fluid of the stomach and its administration will be equivalent to the administration of cinchophen accompanied by an insignificant amount of magnesium. The Council found Rheumeez unacceptable because (1) it is an unessential modification of the established drug cinchophen; (2) it is marketed under a nondescriptive therapeutically suggestive name; and (3) it is advertised with unwarranted and misleading claims which will lead the public to attempt self-medication in conditions which require the diagnosis and supervision of physicians. (Jour. A. M. A., July 11, 1925, p. 132).

Prevention of Mosquito Bites.—Numerous preparations have been proposed to be applied to exposed parts of the body to prevent mosquitoes from biting. Among these are oil of pennyroyal, resorcin monoacetate euresol, various forms of petroleum, and powders and washes similar to the following: Oil of eucalyptus 25 c.c., talc 50 gm., starch 325 gm., oil of cinnamon 1 c.c., oil of patchouli 1 c.c., oil of santal 4 c.c., alcohol to make 400 c.c. (Jour. A. M. A., July 11, 1925, p. 134).

Lowering the Blood Pressure with Liver Extract.—The effect of liver extract administration on blood pressure was studied in thirty-three cases. In these cases hypertension had persisted for varying periods. Physiological sodium chloride solution of extract of the liver was injected intravenously. Twenty-five patients experienced no disagreeable symptoms, most of them reported apparent relief. In eight cases there were reactions of varying degree, some of which resembled protein shock. There was an average fall in the systolic pressure of 62 mm., and an average fall in diastolic pressure of 28 mm. Investigations are under way to determine the constituent or constituents of liver responsible for the effect on blood pressure. The clinical value of liver extracts will depend, not only on the development

of a stable and uniform extract, but also on the permanence of the fall in pressure and its relation to other pathologic changes existing in the body. (Jour. A. M. A., July 18, 1925, p. 194).

Mizar.—Mr. Sorokowski, formerly of Chicago and now apparently operating from a suburb, Oak Park, sells, "especially to the foreign element," a product that he calls "Mizar" as "the most effective remedy for rheumatism." Mizar comes in the form of an ointment. Two cases of dermatitis venenata from its use have been reported. The A. M. A. Chemical Laboratory examined Mizar and reports that the preparation may be considered essentially an ointment, the chief active ingredient of which is an extract of capsicum. Presumably a product of this sort appeals to those purchasers of "patent medicines" who feel that they are not getting their money's worth unless the preparation has an appalling smell or taste, or produces some physiologic reaction that will make them sit up and take notice. (Jour. A. M. A., July 18, 1925, p. 212).

Administration of Hexamethylenamin.—In a solution containing hexamethylenamin 3 gm., acid sodium phosphate 9 gm., and distilled water 120 c.c., a faint reaction for free formaldehyde is obtainable, though the reaction is much less intense than that obtained in a solution of the same amount of hexamethylenamin in 0.2 per cent hydrochloric acid. In the course of days when kept at ordinary room temperature and in diffused light the formaldehyde reaction in the solution increases. When recently prepared the acid sodium phosphate-hexamethylenamin mixture is not objectionable; however, in view of the comparative instability of the mixture it is advisable either, as Useful Drugs recommends, to administer acid sodium phosphate midway between the doses of hexamethylenamin or else to add hexamethylenamin to a solution of acid sodium phosphate just before administration. (Jour. A. M. A., July 18, 1925, p. 214).

Sodium Iodid in Asthma.—The use of iodids as adjuvants in the treatment of asthma seems to be of such general acceptance that recent medical literature reveals few special studies of its effects in this condition. The intravenous administration of sodium iodid in this condition has been reported. However, a report on the intravenous administration of sodium iodid in the Mayo Clinic states that there is no advantage in using sodium iodid intravenously, except in a few cases where massive doses might cause iodism. The Council on Pharmacy and Chemistry does not endorse the routine administration intravenously of sodium iodid. The Council holds that intravenous medication generally is not as safe as oral administration, and further, that there is little if any justification for the intravenous administration of such agents as sodium iodid, because their systemic effects are promptly obtained from oral administration. (Jour. A. M. A., July 25, 1925, p. 290).

Book Announcements

Symptoms of Visceral Disease. A Study of the Vegetative Nervous System in Its Relationship to Clinical Medicine. By FRANCIS MARION POTTENGER, M. D., LL. D., F. A. C. P., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Calif.; Author of "Clinical Tuberculosis," etc. Third edition. St. Louis. The C. V. Mosby Company. 1925. 394

pages with eighty-six text illustrations and ten color plates. 8vo. Cloth. Price, \$6.50.

Personal and Community Health. By CLAIR ELSMERE TURNER, Associate Professor of Biology and Public Health, Massachusetts Institute of Technology; Associate Professor of Hygiene, Tufts College Medical and Dental Schools; Major, Sanitary Corps, U. S. A. (Reserve). St. Louis. The C. V. Mosby Company. 1925. 426 pages. Illustrated. 8vo. Cloth. Price, \$2.50.

Some Fundamental Considerations in the Treatment of Empyema Thoracis. By EVARTS A. GRAHAM, M. D., Member of Empyema Commission, U. S. Army; Professor of Surgery, Washington University School of Medicine, St. Louis, etc. This essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery in 1920. St. Louis. The C. V. Mosby Company. 1925. 110 pages. Illustrated. 8vo. Cloth. Price, \$2.50.

Methods in Surgery. Used in the Surgical Divisions of Barnes Hospital, St. Louis Children's Hospital, and Washington University Dispensary. Including Outlines for Case History-Taking, Preoperative and Postoperative Care of Patients, Routines, Diets, etc. By GLOVER H. COPPER, M. D., Instructor in Surgery, Washington University School of Medicine, etc. St. Louis. The C. V. Mosby Company. 1925. 232 pages. 8vo. Cloth. Price, \$3.00.

Old and New Viewpoints in Psychology. By KNIGHT DUNLAP, Professor of Experimental Psychology in the Johns Hopkins University. St. Louis. The C. V. Mosby Company. 1925. 166 pages. 12mo. Cloth. Price, \$1.50.

The Normal Diet. A Simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients. By W. D. SANSUM, M. D., Director of the Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara, Calif. St. Louis. The C. V. Mosby Company. 1925. 72 pages. Illustrated. 12mo. Cloth. Price, \$1.50.

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the Forty-Sixth. Philadelphia. Printed for the College. 1924. 892 pages. 8vo. Cloth.

Smithsonian Institution, Bureau of American Ethnology, Bulletin 78. Handbook of the Indians of California. By A. L. KROEBER. Washington. Government Printing Office. 1925. 8vo. 995 pages and charts. Illustrated.

Thirty-Ninth Annual Report of the Bureau of American Ethnology. To the Secretary of the Smithsonian Institution. 1917-1918. Washington. Government Printing Office. 1925. Quarto. 636 pages. Illustrated.

Preventive Medicine. By MARK F. BOYD, M. D., C. P. H., Member of Regular Field Staff, International Health Board of the Rockefeller Foundation; formerly Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Second Edition, Revised. Philadelphia and London. W. B. Saunders Company. 1925. 8vo. of 429 pages with 135 illustrations. Cloth. Price, \$4.00 net.

A Manual of Gynecology. By JOHN C. HIRST, M. D., F. A. C. S., Associate in Obstetrics, University of Pennsylvania, etc. Second Edition, Revised. Philadelphia and London. W. B. Saunders Company. 1925. 12mo. of 508 pages with 195 illustrations. Cloth. Price, \$3.50 net.

Physical Chemistry in Biology and Medicine. By J. F. McCLENDON, Ph. D., Professor of Physiologic Chemistry, University of Minnesota Medical School, and GRACE MEDES, Ph. D., Assistant Professor of Physiologic Chemistry, University of Minnesota Medical School. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 425 pages, illustrated. Cloth. Price, \$4.50 net.

A Text-Book of General Bacteriology. By EDWIN O. JORDAN, Ph. D., Professor of Bacteriology in the University of Chicago and Rush Medical College. Eighth Edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 752 pages, fully illustrated. Cloth. Price, \$5.00 net.

American Illustrated Medical Dictionary (Dorland). A New and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc., with the Pronunciation, Derivation, and Definition. Thirteenth Edition, Revised and Enlarged. Edited by W. A. NEWMAN DORLAND, M. D., F. A. C. S. Philadelphia and London. W. B. Saunders Company. 1925. Large Octavo of 1344 pages with 338 illustrations, 141 in colors. Flexible binding. \$7.00 net; thumb index, \$7.50 net.

To those familiar with Dorland's Medical Dictionary, the mere mention of the fact that a new edition has been issued is sufficient. This book is a recognized authority in the medical world and, perhaps, the most useful book any doctor could have in his library. This dictionary includes much collateral information of an encyclopedic character, together with new and elaborate tables on arteries, muscles, nerves, veins, etc.; of bacilli, bacteria, diplococci, micrococci, streptococci, weights and measures, posologic tables, eponymic tables of diseases, operations, signs and symptoms, stains, tests, methods of treatment, etc.

Since the appearance of the last edition, there has been no let up in the appearance of new terms in medical literature, and as a result, about 2,500 new words make their first appearance in this edition.

Doctors in this State will be especially interested to learn that Dr. E. C. L. Miller, of the faculty of the Medical College of Virginia, has been engaged in the revision of this dictionary in the fields of bacteriology, immunology, public health, etc., as before. He has also made a painstaking revision of the terms in pharmacy and has added notably to the terminology of this department of the book.

We highly recommend this dictionary.

Tuberculosis in Greenland.

It is reported that tuberculosis is making

serious ravages among the natives of Greenland, where the knowledge of the principles of hygiene is very primitive. A year ago a society for the relief of the children of Greenland was formed in Denmark (to which country Greenland belongs), which already has 5,000 members. With the aid of the Danish Ministry of the Interior and Health Service and the officials concerned with the government of the island measures have been adopted for the installation of a 20-bed hospital for tuberculous children. The society is also taking measures for the protection of orphans in Greenland and is endeavoring to find foster homes for them.

The American College of Radiology and Physiotherapy

Is to hold its annual meeting in Chicago, October 19-22, with headquarters at Hotel La Salle. Members of the Medical Society of Virginia are cordially invited to attend. Dr. Curran Pope, of Louisville, Ky., is president, and Dr. R. W. Fouts, of Omaha, Nebr., secretary.

Part-Time Schools, New York.

According to a recent report, ninety thousand boys and girls between fourteen and seventeen years of age are enrolled in part-time schools in New York State. Under the law, children between fourteen and eighteen not attending full-time day school must attend part-time schools where these schools are established. There are 655,000 boys and girls between these ages in the State and 282,000 are outside the full-time schools. The law with regard to part-time schools is working well, the director reports. It has served to keep many at full-time schools who might otherwise have gone to work, and has made for better enforcement of the compulsory school laws.

Health Exposition, Germany.

A national exposition on health, social welfare, and physical training is to take place in Dusseldorf in 1926 under the auspices of the National Government and with the co-operation of the State governments and various private organizations. The purpose of the exposition is to point out to the German people the importance of proper care of the health, to enable them to meet their obligations in Germany and outside of it. More than 1,000 specialists in various fields are engaged in arranging for the exposition.

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Editorial

Comments on Treatment of Bile Tract Disease.

As one reviews the literature on liver and bile, one is impressed with the volume of work done by various research workers within the last few years. Some of it seems reduplication of work on questions apparently settled, or, at least, apparently accepted as settled by physiologists and recorded in text-books used in medical schools. One is also impressed with the little advance made beyond what modern text-books of physiology give. Really, one may well wonder whether the workers attempting to do research have already familiarized themselves with what is considered to be known, as it is given to medical students in text-books on modern physiology. One may, therefore, well suggest to practicing physicians to read carefully the physiology of the liver and gall-bladder in modern text-books on the subject, if they are interested in this important field of study. By reading works on physiology one may see the important relationship between the malfunction and diseases of the liver and bile tract, with many problems of diagnosis necessarily coming up in the daily routine practice, where digestive disturbances and abdominal discomforts are found.

Having done this, one may naturally think of the symptomatology that may arise or eventuate as a result of the curtailment, abridgment, perversion and suppression of the physiologic action of the liver, and its secretory and excretory juice, the bile. One may easily

conceive that the digestion of food results, not from the action of the secretions of the mouth, the stomach and the intestines, with accessory glands, when acting singly, but only when each organ acts in co-operation and sequence, with the others. When one organ of the alimentary tract fails in its function, compensatory strain is thrown upon the next organ involved in the process of food digestion. To repeat, when organs below the stomach, such as the liver and pancreas, or the ducts conveying digestive ferments therefrom, become so crippled as to fail to perform for a long time, essential parts of digestion, symptoms of disordered digestion necessarily result.

LIVER AND BILE

1. The liver plays its foremost part in body welfare in carbohydrate metabolism. The liver stores glycogen and maintains the level of blood sugar to meet requirements of body activity and heat; at the same time it excretes and secretes bile.

2. The liver function in protein metabolism is recognized and emphasized by physiologists. Its action on the amino-acids—both the new and rejected “building stones” of protein food and protein body—is essential to life.

3. The liver action on the fats is a physiologic one of no mean importance.

4. The bile function of the liver cells is another essential and most spectacular function of the liver. Pouring out from its cells 500 c.c. to 800 c.c. daily, bile is both an excretory fluid as well as a digestive one. It has been shown that bile flow is essential to the life of the body; this function of the liver cannot long be suppressed, without death following. It may be obstructed at its outlet without immediate death, but if suppressed at its source, life is terminated in time.

5. Bile, like urine, contains excretory ingredients; refuse matter; end products of metabolism. May it not contain important end products of blood cell, nervous tissue and fat tissue metabolism?

6. Bile, like pancreatic juice, contains important digestive properties in its action in the digestion of fats in the food; it also activates its companion-gland, the pancreas, to secrete pancreatic juice, and bile pigment and bile acids are reabsorbed from the intestinal fluids.

7. Bile is secreted continuously by the liver,

but only small amounts enter the duodenum during fasting.

8. Bile is retained in the common duct by contraction of the sphincter of Oddi, during fasting.

9. Bile produces a pressure of 150 mm. of water at the sphincter of Oddi before escaping into the duodenum.

10. Bile, during fasting (between meals), after filling the common duct is diverted into cystic duct to the gall-bladder.

11. Bile is concentrated and stored in the gall-bladder during fasting.

12. Bile is discharged into the duodenum as the gastric evacuation of chyme occurs, after meals. This is brought about by the relaxation of the sphincter, as the acid chyme bathes the ampulla of Vater.

13. Bile from the gall-bladder, concentrated, then, through release of pressure at the outlet or by slight contraction, is expelled into the common duct and duodenum.

14. Bile in the duodenum activates pancreas, saponifies fats, and is reabsorbed by portal blood and returned to the liver for formation of new bile.

SYMPTOMS OF DISEASE OF THE LIVER AND BILE TRACT

A. Without doubt the functions of the stomach, motor, sensory and secretory, are disordered when bile flow from the liver becomes impaired. This is a common association: gall tract disease and "dyspepsia."

B. In biliary disease, gastric symptoms like heartburn, sour stomach, eructation, heaviness and discomfort in the epigastrium after eating, are common.

C. Tenderness and pain on pressure are often found in biliary disease in the "gall-bladder region" and a boring pain under the right shoulder blade is a frequent occurrence.

D. The liver may be enlarged; the patient may be fat and may suffer from abdominal gas detention, constipation and piles.

E. The patient may have jaundice; the stool may be clay-colored.

F. Pain and biliary colic may occur.

G. In cirrhoses: ascites, hemorrhages, jaundice, spleen enlargement.

H. In infections: hectic fever, jaundice, enlargement.

I. In acute yellow atrophy, carcinoma, cys-

tic disease, syphilis, splenomegalia, the symptoms vary with pathology.

NON-SURGICAL TREATMENT OF BILE TRACT DISEASE

In 1919, Lyon suggested a method of diagnosis and treatment of diseases of the gall-bladder and biliary disease by a non-surgical drainage with duodenal tube. He based his investigation upon a suggestion made by Meltzer (1917), *American Journal of Medical Sciences*, 153: 469, in which he says: "I make, therefore, the suggestion to test in jaundice and biliary colic the local application of a 25 per cent solution of magnesium sulphate by means of the duodenal tube. It may relax the sphincter of the common duct and permit the ejection of the bile, and, perhaps, even permit the removal of a calculus of moderate size wedged in the duct in front of the papilla of Vater."

In 1922, Lyon, having reported his satisfactory experience in the use of this method in a series of papers, in which he outlined his principles and results, answered certain criticisms of non-surgical drainage in the *New York Medical Journal*. In this paper he answered the criticisms of Einhorn, Cooke, Basler, Luckett and Lutz. Since then the treatment has been questioned by surgeons as well. One may say that Lyon appears to take good care of his case in the argument. He has continued his use of this treatment and it has become quite widely used with success in cases of cholecystitis, with and without obstruction, and in diseases of the liver. In the November-December, 1924, *Therapeutic Gazette*, Lyon published a paper giving a summary of his opinion and experience of this treatment of biliary disease. Of 536 patients given this treatment by him in four years, 160 were referred for diagnosis only, and so his results are based upon 376 cases who were treated by "non-surgical drainage, combined autogenous vaccines, colonic irrigation, selective diet, and a minimal use of oral therapy."

Of the 376 patients treated, Lyon reports that 30 per cent were cured (symptom-free for from one to four years); 51.8 per cent were improved and "remain well for periods longer than one year;" 9 per cent were 50 per cent improved; all of these were "chronic;" 2 per cent were entirely unimproved; one patient died of heart failure during the course of

treatment; 7 per cent of the series could not be treated. Of the 536 cases ninety-six were operated upon, and of this ninety-six cases fifty-two had been previously operated upon, before being treated by Lyon. These were surgical failures. "The operations done in this series were as follows:

Cholecystectomies	16 cases
Cholecystotomies	24 cases
Appendectomies	37 cases
Gall-stones removed	17 cases
Adhesions released	17 cases
Gastro-enterostomies	7 cases
Other operations	15 cases
Multiple operations	20 cases
Multiple operations on gall tract	13 cases
Total number of operations on 52 cases	161 cases
Total number of abdominal operations on 52 cases.....	98 cases

"Of this series of fifty-two cases of previous surgical failures, twenty-seven were treated entirely by non-surgical procedures of various kinds (drainage, colonic irrigation, physical therapy, vaccines, diet and drugs) and the average total improvement secured was 83.6 per cent. Six cases could not be traced."

Lyon goes on to say: "It was necessary for me to send nineteen cases for further abdominal surgery, after a preliminary period of preparatory non-surgical drainage. Fourteen of the cases who were followed up by various forms of non-surgical management secured 90 per cent improvement over their previous disability. Two cases are too recent to tabulate: one could not be traced; and two cases died.

"Of the total ninety-six cases operated upon, this second analysis concerns fifty-eight cases personally studied pre-operatively, and then personally referred for surgery. The operations done on this series and the findings were as follows:

Cholecystectomies	33 cases
Cholecystotomies	6 cases
Cholecystoduodenostomies	2 cases
Choledochostomies	2 cases
Cholecystogastrostomy	1 case
Duododuodenostomy	1 case
Appendectomies (incidental) ..	13 cases
Appendectomies alone	6 cases
Gall-stones removed	19 cases
Adhesions released	21 cases

Gastro-enterostomies 6 cases

Pyloroplasties 2 cases

"Of these fifty-eight cases, fifty were primarily gall-tract cases. Most of them represented late pathology, nineteen of which had had previous operations of the gall-tract. Many were distinctly 'bad risk' patients. Forty per cent were given a preliminary period of non-surgical drainage with sufficient improvement to later justify surgery, despite grave contraindications. The mortality was 10 per cent. Twenty-eight per cent required post-operative non-surgical drainage follow-up treatment to insure recovery from post-operative complications, chiefly due to residual duct catarrhs and infections not eradicated by surgery alone. No other method can so well prevent post-operative cholangitis and hepatitis."

At the close of his paper Lyon made the following general statement concerning treatment of gall-tract and liver diseases:

A. Dietetic measures are necessary to correct chemistry of liver.

B. Surgical corrections are necessary in established pathology; non-surgical duodenal drainage before and after operation help patients to recovery.

C. Non-surgical drainage of the biliary system includes the pancreas as well.

D. Autogenous vaccines help convalescence.

E. Colonic irrigations assist in detoxicating patients.

F. Oral therapy assists in general daily regimen.

The New Pharmacopeia.

The tenth revision of the U. S. Pharmacopeia was placed on sale August 15th last. The new drug standards for this country will go into effect January 1, 1926. The association of a committee of twenty-one medical men was important in shaping the revision in the interest of the work of the medical profession. Consequently, says *The Journal of the American Medical Association*, the new book should more nearly represent rational medicine than some of the preceding revisions in which pharmacists and pharmaceutical manufacturers largely controlled the situation. An announcement in *The Journal*, for August 29th, may be read with interest:

"The United States Pharmacopeial Convention met in Washington in May, 1920, and appointed a committee to revise the Pharma-

copeia of the United States. The new Pharmacopeia was placed on sale August 15th; it becomes official January 1, 1926. The responsibility for the scope of the new Pharmacopeia was placed on the twenty-one members who held the degree of Doctor of Medicine. Consequently, the new book should more nearly represent rational medicine than some of the preceding revisions in which pharmacists and pharmaceutical manufacturers largely controlled the situation. From the standpoint of the physician, the most noteworthy feature of this revision is the fact that but forty new drugs and preparations were added, while 192 have been deleted. The additions are drugs which give promise of therapeutic worth: thirty-one of them already described in New and Non-official Remedies. The omission of such substances as arnica, calcium hypophosphite, cerium oxalate, coriander, grindelia, hops, lactucarium, three lithium salts, matricaria, prickly ash, musk, parsley, pepper, saw palmetto, stillingia, sumbul and taraxicum is a distinct aid to scientific medicine. The retention of sarsaparilla is to be regretted. An effort has been made to simplify the Latin titles: Examples are: The substitution of Cinchophenum for Acidum Phenylcinchoninicum; Methenamina for Hexamethylenamina; Liquor Pituitarrii for Liquor Hypophysis. Whereas the present Pharmacopeia requires that two drugs and their preparations be standardized biologically, the new book requires that eight must be so standardized. The unit of measurement, the milliliter (abbreviation 'Mil'), which is used in the present Pharmacopeia has happily been abandoned again and the familiar cubic centimeter (abbreviated 'cc.') restored."

SOME WAYS TO KILL A MEDICAL SOCIETY.

1. Don't go to the meetings.
2. If you do attend a meeting, find fault with the work of the officers and members.
3. Never accept office, as it is easier to criticize than do things.
4. Get sore if you are not appointed on a committee, but if you are, do not attend committee meetings.
5. If asked by the chairman to give your opinion on some matter, tell him you have nothing to say. After the meeting, tell everyone how things should be done.
6. Hold back your dues, or don't pay at all.
7. Don't bother about getting new members. "Let George do it."—(Selected.)

News Notes

TO THE MEMBERS OF THE MEDICAL SOCIETY OF VIRGINIA

The Richmond Academy of Medicine extends a cordial invitation to all of the members of the State Society to be present at the 56th annual meeting to be held in Richmond, October 13 to 16, inclusive. The Committee hopes to make this one of the most enjoyable occasions in the history of the Society and every effort is being made to provide entertainment not only for the members themselves but for those of their families who may attend.

We have been assured that a carefully selected scientific program is being arranged and the names of distinguished guests from a distance will also appear on the program. The social entertainment necessary to supplement the main activities of the meeting will be provided by a number of committees, the members of which will cheerfully co-operate in making the entire meeting a success.

Let each member of the Society make his plans to be our guest at this time. We want a record-breaking attendance.

T. D. JONES, Chairman,
Committee on Arrangements.

On To Richmond!

Next month is the time. Dates for the annual meeting of the Medical Society of Virginia are October 13, 14, 15 and 16, and all members of the Society should try to attend this meeting, for coming to Richmond, is like "coming back home" for many of the doctors in the State. All members of the Society are urged to attend this meeting and bring their wives and daughters. See that your Society has its quota of delegates.

Dr. Thomas D. Jones, Medical Arts Building, Richmond, is general chairman in charge of the Richmond meeting. All meetings will be held in the Jefferson Hotel, headquarters for the convention. Attractive entertainment is being arranged for the ladies and it is expected that the scientific and social features will be sufficient to interest the men.

The usual golf tournament is to be held on Tuesday, the 13th, opening day of the meeting—the first session being that evening. Those who wish to take part in this tournament should write at once to Dr. E. H. Terrell, Medical Arts Building, this city.

Virginia now boasts a number of women doctors in its membership and special invitation is extended them to attend this meeting. Dr. Mary Baughman has been appointed a mem-

ber of the entertainment committee that she may especially look out for the women doctors in attendance at this meeting and she would be pleased to get in touch with each woman doctor in the Society.

The Scientific Exhibit is expected to be very interesting. Already several individuals have signified their attention of having exhibits. Among others there will be X-ray lantern slides of varying conditions, drawings and specimens of unusual and interesting tumors, and drawings and photomicrographs of experimental work. Dr. J. Shelton Horsley, chairman of this committee, urges all who care to have an exhibit to send their applications to him as soon as possible.

Scientific exhibits, as usual, will be attractive and the exhibitors who have taken space will be interested in showing their products to the members of the Society and their friends.

The symposium on "Puerperal Infection" should be a good one, and the guests invited by our president, Dr. Hunter McGuire, of Winchester, will add greatly to the interest of the meeting. They are Drs. George E. de Schweinitz and Alfred Stengel, of Philadelphia, and Dr. David S. Hillis, of Chicago.

We are getting out of the beaten tracks this time and are planning to have motion pictures, one evening. These will be on two good professional subjects and should prove a pleasant innovation at the meeting.

You cannot afford to miss this meeting. Come early and stay late!

Notice.

During the 1919 session of the Medical Society of Virginia, a Virginia Railway Surgeons' Association was organized. Since that time this Association has been inactive. Upon the request of a large number of Railway Surgeons of this State, the President of this Association has called a meeting of the Railway Surgeons of the State for the purpose of reorganization.

This meeting is called during the coming session of the Medical Society of Virginia in Richmond. The meeting will be held in the room provided for the House of Delegates at 2:30 P. M. Thursday, Oct. 15, 1925.

All railway surgeons of the State are urged to attend. By order of the President.

E. L. KENDIG, *Secretary*.

Late Vacationists.

Dr. J. A. Rucker and family, of Bedford, are home again after a motor trip through the mountains of North Carolina.

Dr. and Mrs. Karl Blackwell and children, of Richmond, recently visited relatives near Warrenton, Va.

Dr. and Mrs. William Meyer have returned to their home at Herndon, after a visit to Richmond, Ocean View and Enfield, N. C.

Dr. Greer Baughman and daughter, of Richmond, are home again after a water trip to Boston, Mass.

Dr. and Mrs. H. E. Whaley, Victoria, were recent visitors in Saunton, Va., having gone there to attend the Whaley-Thomas wedding.

Dr. H. S. Belt, South Boston, recently visited a brother in New York City.

Dr. and Mrs. E. G. Hill, Richmond, left the latter part of August for a motor trip through the Valley of Virginia.

Dr. H. P. Gibson, Leesburg, spent his vacation recently at Ocean City, Md., where his wife had been for some time.

Dr. and Mrs. E. H. Terrell and daughters returned to their home in Richmond the latter part of August, after a motor trip through the New England States and Canada.

Dr. P. G. Hamlin, a member of the staff of the Epileptic Colony, was a recent visitor at Eastern State Hospital, Williamsburg, Va.

Dr. Maurice M. Lynch, Jr., one of the interns at Memorial Hospital, Richmond, recently visited his parents at their home in Winchester, Va. He had as his guest Dr. John Hillsman, of Richmond. Both are of the '25 class, Medical College of Virginia.

Dr. C. E. Dyer, of Jewell Ridge, spent several days with relatives in Pulaski, the latter part of August, when returning from a vacation spent in Washington, Baltimore, New York, and in attending the American Legion convention at Staunton.

Dr. Robert C. Bryan has returned to Richmond, after spending his vacation with his family at Biddeford Pool, Maine.

Dr. N. G. Wilson and children, of Norfolk, were among the late summer visitors at Maple Shade Inn, Pulaski, Va.

Drs. C. M. Caravati and L. O. Snead, of Richmond, recently visited Dr. and Mrs. R. F. Cline, at Winchester, Va.

Dr. and Mrs. L. H. Apperson, of Petersburg,

spent the month of August with relatives at Tunstall, Va.

Dr. and Mrs. T. H. Massey, Smithfield, left the end of August for a motor trip to Washington, Niagara Falls, and other northern points.

Dr. and Mrs. E. T. Gatewood and children have returned to Richmond, after spending some time at Buena Vista Springs, Pa.

Dr. and Mrs. M. H. Tredway, Emporia, spent their vacation visiting relatives and friends at South Hill and Chatham, Va.

Dr. and Mrs. Stuart McGuire have returned to Richmond, after a vacation spent at Fisher's Island and in New York City.

Dr. and Mrs. H. M. Snead, of South Hill, have been spending some time at Fork Union, Va.

Dr. and Mrs. Warren Vaughan and family of Richmond, returned home early in August, after a visit with relatives in Michigan.

Dr. and Mrs. Roshier W. Miller and son, Richmond, have been tenting with friends on their lots at Rappahannock Banks, Va., while their cottages are being built.

Dr. Meade S. Brent, Petersburg, visited his former near Heathsville, Va., in August.

Dr. J. B. Dalton and family, Richmond, visited friends in Emporia during August.

Dr. R. H. Woolling, Pulaski, spent some time in August in Richmond, Va.

Dr. W. C. Ford, Woodstock, visited friends in Chicago, Ill., during August.

Dr. and Mrs. T. Latane Driscoll, Richmond, visited Mrs. Driscoll's parents at Scottsville, Va., in August.

Dr. and Mrs. A. C. Swimley, of Winchester, with a party of friends, took a motor trip to Fairport, N. Y., in August.

Dr. A. S. Lilly and family, Richmond, after returning from a motor trip to West Virginia, spent some time at their summer home on the Rappahannock.

Dr. E. R. Miller, Harrisonburg, spent the month of August in Richmond, Va., and Tampa, Fla.

Dr. and Mrs. Clifton Miller, Richmond, returned home late in August after a visit to Woodberry Forest, Va., and to Old Sweet Springs.

Dr. P. W. Boyd and daughters, returned to their home at Winchester, about the middle of

August, after a visit to Dr. Hugh MacLean, at Regina, Canada.

Dr. and Mrs. St. George T. Grinnan, Richmond, returned home the middle of August, after a stay at Mountain Lake, Va.

Dr. David B. Lepper, Smithfield, of the State Health Department, visited Waverly, Va., in August.

Dr. and Mrs. Stuart Michaux returned to Richmond, the latter part of August, after a visit to Hot Springs, Va.

Dr. Samuel Maphis, Warrenton, recently visited his sister at Edinburg, Va.

Dr. and Mrs. Lawrence T. Price returned to Richmond late in August, after a visit to Dr. Price's former home in Botetourt County, Va.

Dr. and Mrs. W. S. Ferguson, Lynchburg, in August went on an automobile trip which took them through the White Mountains and into Canada.

Dr. William Patterson returned to Richmond in August after a visit to his farm at Grottoes, Va., and with friends in Waynesboro, Va.

Dr. and Mrs. W. O. Bailey and children, Leesburg, spent part of August at Ocean City, Md.

Dr. and Mrs. Frank K. Lord, Richmond, took a motor trip last month through the Valley of Virginia.

Dr. and Mrs. Charles C. Page returned to their home at Orange, the middle of August, after a visit to Asbury Park, N. J.

Dr. I. C. Harrison returned to Danville the middle of August after a visit to Richmond and New York.

Dr. and Mrs. D. D. Talley, Jr., and Dr. and Mrs. Robert S. Preston, Richmond, after a visit at Fisher's Island, left New York City, the first of September, for a two weeks' motor trip through the Northern States and Canada.

Dr. and Mrs. J. R. Gorman, Lynchburg, have been visiting Mrs. Gorman's parents, Dr. and Mrs. J. H. Ferguson, at Clifton Station, Va.

Dr. and Mrs. Charles V. Carrington, Richmond, spent some time in August, cruising with friends off the Maine coast.

Dr. G. W. Brown and daughter, of Williamsburg, spent the latter part of August in Asheville, N. C.

Dr. and Mrs. George B. Fadeley, of East

Falls Church, recently visited relatives at Edinburg, Va.

Dr. and Mrs. Emory Hill and Dr. J. A. White, who spent the summer abroad, have returned to their homes in Richmond.

Dr. P. A. Irving, Farmville, recently attended the Bible lessons meeting at Massanetta Spring, Va.

Dr. and Mrs. A. C. Monroe and daughters, Richmond, spent the first part of August at Ocean View and Virginia Beach.

Dr. W. W. Seward, Surry, visited Buffalo Lithia Springs, Va., in August.

Dr. T. E. Hughes, Richmond, spent his vacation at White Sulphur Spring, W. Va.

Dr. J. W. Walters, Lynchburg, recently visited relatives at Luray, Va.

Dr. and Mrs. Henry A. Bullock and children, Richmond, returned home in August, after a motor trip to North Carolina.

Dr. and Mrs. L. O. Vaughan, Waverly, went by motor, in August, for a visit in Delaware.

Dr. George Tully Vaughan, Washington, D. C., visited friends at Amherst, Va., last month.

Dr. and Mrs. John D. Foltz, Richmond, are home again after a visit to friends in Harrisonburg, Va.

Dr. Louis S. Greene and Dr. John W. Burke, of Washington, D. C., after returning from a trip abroad, spent some time with their families at Woodberry Forest, Va.

Dr. Lucy Hill, of the class of '24, Medical College of Virginia, after a year's internship at St. Elizabeth's Hospital, Washington, D. C., is spending some time with her parents, Dr. and Mrs. H. H. Hill, of Locust Dale, Va.

Dr. and Mrs. Emmanuel Wallerstein, Richmond, are home again after a stay at Blowing Rock, N. C.

Dr. and Mrs. A. J. Hurt and daughter, of Chester, spent the month of August on a motor trip visiting a number of places in Florida.

Dr. A. I. Dodson, Richmond, is home again after attending encampment with the National Guard at Old Point, Va.

Dr. Joseph E. Burns,

Goldston, N. C., of the class of '23, Medical College of Virginia, is now a house surgeon with the Willard Parker Hospital, New York, after completing a service at City Hospital, New York.

The Clinical Congress of the American College of Surgeons

Will hold its fifteenth annual session at the Bellevue-Stratford Hotel, Philadelphia, Pa., October 26-30, inclusive. Dr. Franklin H. Martin, Chicago, is director-general, and Dr. Rudolph Matas, New Orleans, La., president.

Married.

Dr. Jury B. Loving, New Goshen, Ind., and Miss Anne Elizabeth Harris, Prospect, Va., September 5. Dr. Loving is a native of Culpeper County, Va., and a member of the class of '22, Medical College of Virginia.

New Medical Officer in Charge at Oteen.

Dr. Edward P. Odend'hal, who formerly practiced in Virginia, has been appointed medical officer in charge of the U. S. Veterans' Bureau Hospital, at Oteen, N. C. He succeeds Dr. Herbert E. Whitley, who will have an indefinite leave.

The American Dietetic Association

Will hold its annual convention at Edgewater Beach Hotel, Chicago, Ill., October 12-15, inclusive. The program has been arranged to include the various branches of the food problem.

Dr. Henry A. Hornthal,

Of the class of '24, Medical College of Virginia, upon completion of his year as house surgeon at St. Luke's Hospital, Richmond, has taken over the office and practice of the late Dr. Robert J. Yates, at Potomac, just out from Alexandria, Va.

The American Public Health Association

Will hold its fifty-fourth annual meeting in St. Louis, Mo., October 19-22, with Hotel Statler as headquarters. For detailed information, address the secretary, 370 Seventh Avenue, New York City.

Dr. George C. Tyler,

Who located at Chester, Va., shortly after receiving his diploma in medicine from the University of Tennessee, last year, has moved to Heathsville, Va., where he will continue the practice of medicine.

Dr. Harry H. Ware, Jr.,

Who graduated at the Medical College of Virginia, last year and later served an internship at Stuart Circle Hospital, Richmond, is now house doctor at the Neponsit Beach Hospital for Children, at Rockaway Beach, N. Y.

Announcement of New Report.

The Children's Bureau of the United States Department of Labor has just issued a report on "Laws Relating to Sex Offenses Against Children." This publication (Number 145) includes abstracts and texts of State age-of-consent laws and of laws relating to abduction, seduction, prostitution, and to other sex offenses, so far as they concern minors. The abstract of the laws was made by Reuben Oppenheimer, and their compilation was the work of Lulu L. Eckman. The text of Federal laws which have some bearing upon the subject, such as laws relating to the white-slave traffic, or to the transportation of aliens for immoral purposes, is also included. Single copies of this report will be issued free upon request.

Dr. H. O. Bell,

Formerly medical inspector with Richmond Bureau of Health, has completed a post-graduate course at New York Nursery and Child's Hospital, and is now spending some time at his former home, Wilmington, Virginia.

"The Navy's Human Problem"

Is one of a series of papers by Dr. W. Armistead Gills, Richmond, U. S. Navy (retired), which appeared in a recent issue of *McNaught's Monthly*. Other articles in this series are "Navy Doctors and Sick Sailors" and "The Woes of Sick Bluejackets." These articles tell graphically of experiences witnessed by Dr. Gills during his service and are interesting reading.

Elizabeth Buxton Hospital,

Newport News, Va., has issued its annual report for 1924. The report shows a variety of work done on 1,650 patients. The total number of operations on these patients, major and minor, was 1,131. The mortality rate was low.

Dr. Fravel Resumes Work.

After an illness of several months, Dr. R. C. Fravel has returned to Richmond and has opened offices at 1103 West Franklin Street, the home of the late Dr. J. N. Upshur, which Dr. Fravel purchased this summer.

For the past sixteen years, Dr. Fravel has been associated with Dr. Stuart McGuire at St. Luke's Hospital. He will continue to limit his work to general surgery.

Randolph L. Wood,

Son of Dr. A. F. Wood, of Parksley, Va., with a party of friends, narrowly escaped

serious accident, this summer, when his car skidded in deep sand and ran into a telegraph pole, cutting it off twelve inches from the ground. No one was hurt.

Randolph entered the University of Richmond, this Fall, to take the pre-medical course, leading to the study of medicine, which he will take up at Medical College of Virginia.

American Board of Otolaryngology.

The next examination given by the American Board of Otolaryngology will be held at the Cook County Hospital, Chicago, on October 19, 1925. Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

Dr. J. B. DeShazo

Has returned to his home at Ridgeway, Va., after taking a post-graduate course in dermatology, in New York.

Dr. A. T. Sheffield,

Recently of Holland, Va., has moved to Suffolk, Va., and has offices in the American Bank and Trust Building, of that place.

Dr. J. S. Horsley, Jr.,

Richmond, recently underwent a third operation upon his leg for an old football injury.

The Southern Medical Association Meeting.

The various committees appointed in connection with the meeting of the Southern Medical Association in Dallas, November 9, 1925, report very satisfactory progress.

It is especially gratifying to know that the hotel committee has already succeeded in having reserved for guests more than 1,600 rooms in the leading and best hotels of Dallas. This insures comfortable and suitable hotel accommodation, no matter how great the attendance.

For the first time in its history, the Association will have all its activities housed in one building. The new educational building of the First Baptist Church on the corner of St. Paul and San Jacinto Streets will be completed long before November and will have a sufficient number of assembly halls for the various section meetings. The large auditorium with its splendid acoustics gives ample room for all general sessions and the basement floor, easily accessible, will give more than enough room for all exhibits, commercial and scientific.

Clinics in all branches will be conducted in all Dallas' splendid hospitals, which contribute

largely to its rank as a medical center of the Southwest. The bed capacity in the larger hospitals alone is in excess of 1,200. Over \$8,000,000.00 has been invested in the hospital facilities. Below is given some data on the different institutions located in the city.

BAYLOR HOSPITAL AND MEDICAL SCHOOL

The Baptist Memorial Sanitarium was opened in 1909, being enlarged in 1922 and the name changed to Baylor Hospital. It is the largest sanitarium in the city, having a capacity of 432 beds. One hundred graduate nurses and one hundred and sixty-five training nurses are employed.

The capital invested is in excess of \$3,000,000, the hospital being operated by the Baptist denomination of Texas.

While the main plant of the Baylor University is located at Waco the schools of Dentistry, Nursing, Medicine and Pharmacy are in Dallas. The enrollment is in the neighborhood of 1,000. The Medical Department will be in session during the S. M. A. meeting, and all its clinics open to visiting physicians.

ST. PAUL'S SANITARIUM

This hospital was established in 1896. The original capacity was 210 beds, but an addition built in 1916 increased the capacity to 300 beds. Two hundred and fifty nurses are employed in the sanitarium. A nurses' training school is operated by the Daughters of Charity of St. Vincent de Paul who are also in charge of the management of the main sanitarium. Investments in buildings and grounds are placed at \$1,750,000.00

DALLAS SANITARIUM

The first bed unit of this hospital is now under construction and will cost \$500,000. When completed the hospital will contain 500 beds and represent an investment of more than \$1,250,000. It was established and will be operated by the North Texas Methodist Conference.

PARKLAND HOSPITAL

This 250 bed hospital is operated by the City-County Board. It was established in 1896. Ten graduate nurses and seventy-two nurses in training are employed. It is estimated that the capital invested is in the neighborhood of \$1,000,000. Dr. Lane V. Cooke is the superintendent. A nurses' training school is operated in conjunction with the hospital. At the present time plans are being made to

enlarge the school to take care of one hundred students.

FREEMAN MEMORIAL CLINIC

This free clinic was first established in the basement of the First Presbyterian Church, in 1921. In 1924 the clinic was endowed by T. R. Freeman and a beautiful building was erected as a memorial to his wife and son. The clinic is absolutely free and handles an ever growing number of patients. The building, together with the equipment, is valued at \$100,000.

HELLA TEMPLE CHILDREN'S HOSPITAL

Established in 1923 by Hella Temple for the treatment of crippled children. It contains fifty beds and employs five registered nurses, fourteen attendant nurses and twelve other employees. It is supported jointly by Hella Temple and the Scottish Rite bodies.

The Timberlawn Sanitarium is a forty bed hospital employing eighteen nurses and treating nervous and mental diseases. It is located on the Orphan's Home Road and represents an investment of \$75,000.

MEDICAL ARTS BUILDING

The story of Dallas as a medical center would not be complete without some mention of this nineteen story skyscraper, completed in 1924 at a cost of \$1,500,000. It was designed for and is occupied by the medical and dental professions. It is of Gothic Cross design, assuring both light and ventilation to every office. At the time the building was erected it was the tallest monolithic concrete building in the world. About 60,000 patients visit this building every month.

The Medical Profession of Dallas and of Texas warmly invites the Southern Doctor and his wife to visit Dallas on November 9, 1925.

CURTICE ROSSER, M. D.,

For the Publicity Committee.

Dr. Rachel F. Weems,

Medical College of Virginia, '24, spent the summer at her home in Ashland, Va., after completing a year's internship at the Memorial Hospital, Worcester, Mass. She is now located at State Teachers' College, Harrisonburg, Va., as resident physician and professor of health education.

Dr. Rolston's Barn Struck by Lightning.

Dr. C. H. Rolston, Mt. Clinton, Va., had the misfortune to lose a big barn, the first of this month, when it was struck by lightning. In

addition to the building and grain, several fine horses and hogs were destroyed in this fire.

Dr. Q. H. Barney,

Formerly of Wardensville, W. Va., has located at Mt. Sidney, Va. Dr. Barney graduated from Medical College of Virginia in 1916.

Dr. E. D. Rollins,

Formerly of Gate City, Va., is located at 511 Shelby Street, Bristol, Tennessee.

The Treatment of Syphilis.

A working monograph on the treatment of syphilis has been prepared for the medical profession by the Dermatological Research Laboratories which will be sent with the compliments of the publishers to any physician requesting a copy. This booklet discusses, in separate chapters:

Introduction, Syphilis today; Arsphenamine vs. Neorarsphenamine; Sulpharsphenamine; Bismuth in Syphilis; Mixed Treatment; Methods of Treatment in the various stages of the disease; Intraspinal Injections; Technic of Preparing Arsphenamine, Neoarsphenamine, Sulpharsphenamine, and Bismuth; Possible Reactions, etc.

Requests for this monograph should be addressed either to The Abbott Laboratories, Chicago, or the Dermatological Research Laboratories, Philadelphia.

Dr. R. A. Rosser,

Formerly of Portsmouth, Va., is now located in Lynchburg, Va., with offices at 813 Church Street.

The American Roentgen Ray Society

Will hold its annual meeting at the Mayflower Hotel, Washington, D. C., September 22-25. Dr. Charles L. Martin, of Dallas, Texas, is secretary of the Society.

Two of Virginia's Public Health Men Move to Florida.

Dr. E. C. Levy, one of the acknowledged authorities on preventive medicine in the United States, and for a number of years director of public welfare of Richmond, Va., has accepted the position as head of the Health Department of Tampa, Florida, and will leave this month to enter upon his new duties.

Dr. A. D. Knott, county health officer of Accomac County, Va., has also resigned his work in this State to accept a similar position at West Palm Beach, Fla. Dr. Knott's work

has been of a high standard, as demonstrated by results obtained.

We Are Getting Older.

According to the New York State Department of Health, the population of the State of New York is getting older. The estimated average age of the people of that State is now thirty years and three months, whereas in 1850 it was twenty-four years and seven months. In only twenty years, the expectation of life at birth, in New York State, has increased for males by seven years and three months, and for females by six years and five months, so that the expected age of males at birth is now fifty-two years and ten months, and of females fifty-five years and eight months.

What is true of the average age of the people and the expectation of life in New York is also true of our and other states, advances in preventive and curative medicine having been the principal contributory causes in bringing about these results.

The Medical Association of the Valley of Virginia

Will hold its semi-annual meeting in Winchester, September 24, Dr. D. M. Kipps, of Front Royal, presiding. Dr. Alex. F. Robertson, Jr., Staunton, is secretary.

Dr. I. C. Harrison,

Danville, Va., has tendered his resignation as a member of the city school board of that place, his reason being that the duties of the board trespassed too much upon his professional work.

Dr. P. E. Schools,

Physician in attendance at Pine Camp, Richmond's municipal tuberculosis hospital, has been appointed head of the institution and will enter upon his duties October 1.

The National Recreation Congress

Will hold its twelfth annual meeting in Asheville, N. C., October 5-10, under the auspices of the Playground and Recreation Association of America. This will be the first time the Congress has met in the South since the meeting in Richmond, Va., in 1912, and great strides have been made in the work since that time. Further information may be obtained from Playground and Recreation Association of America, 315 Fourth Avenue, New York City.

Dr. Kendig to be Senator.

Dr. E. L. Kendig, of Victoria, Va., has been

declared Senate nominee and will represent the Ninth District in the State Senate for the next two years.

Dr. W. C. Harmar,

Dolphin, Va., was elected a member of the executive committee of the Brunswick Post, No. 40, American Legion, at its annual meeting in Lawrenceville, in August.

Doctors on Committees of Chamber of Commerce.

The president of the Staunton and Augusta County Chamber of Commerce has appointed the following doctors of Staunton to serve on various committees for the ensuing year: Drs. Alex. F. Robertson, Jr., M. J. Payne, Richard P. Bell, Kenneth Bradford, and J. Fairfax Fulton.

Dr. F. V. Fowlkes,

Well known as the representative in this section of Mead Johnson Company, has moved his home from Burkeville, Va., to 2510 Stuart Avenue, Richmond.

The Interstate Post-Graduate Assembly of America

Will be held at St. Paul, Minn., October 12-16, inclusive, with general headquarters for all scientific sessions and exhibits at the St. Paul Auditorium. Hotel headquarters will be the St. Paul Hotel. Many distinguished speakers are on the program.

Dr. Mary Baughman,

Richmond, Va., announces removal of her offices to 611 Medical Arts Building, this city.

The U. S. Civil Service Commission,

Washington, D. C., announces open competitive examinations for chief social worker (psychiatric), receipt of applications to close September 29; and for junior medical officer, assistant medical officer, associate medical officer, medical officer, and senior medical officer, applications to be rated as received until December 30, 1925, and for trained nurse (psychiatric), receipt of applications to close October 10. Information in regard to the above may be obtained from the above named Commission.

Physiotherapeutic Convention.

Physicians are invited to attend the fourth annual Physiotherapeutic Convention to be held at the Drake Hotel, Chicago, October 12 to 16, 1925. Papers will be read and discussed by leading physicians of National and International reputation in this field. For particulars

see page program in advertising section in this issue. Demonstrations and exhibits of the latest apparatus and methods employed in physiotherapy will be given.

Physicians who are in good standing with their State Medical Associations and can give evidence of that fact are invited. Reservations may be made and programs obtained by addressing the Educational Department of H. G. Fischer & Company, 2335 Wabansia Ave., Chicago, Illinois.

Physicians Wanted for Institutional Work in Maryland.

There are three vacancies for assistant physicians in the Maryland State service, with accommodations for single men. Applicants interested may apply to the State Employment Commission, 22 Light Street, Baltimore, Maryland.

For Sale.

Medical library, office and hospital equipment of the late Dr. W. W. Chaffin. The equipment includes: Allison table; Bausch and Lomb microscope; E. S. I. cautery transformer; electro-diagnostic outfit; portable operating table; specialist cabinet; instrument cabinets; Kny-Scheerer chair; Max Woche & Son air compressor; high tension intermediate X-ray unit, which has not been uncrated; basins; tables; splints; instruments, etc.; also Crown Victor vibrator, and Powers and Anderson instrument sterilizer. Write Mrs. W. W. Chaffin, Pulaski, Va. (Adv.)

For Sale.

Have recently closed small private hospital fully equipped with best material available. Sterilizing outfit, adjustable bedside tables, metal back rests, fracture cradles (for bed clothing) and other hospital and operating room equipment to be disposed of at greatly reduced prices. Address Box 34, Lynchburg, Va. (Adv.)

Sanitarium Building for Rent or Sale.

Within sight of the State Tuberculosis Sanitarium, near Charlottesville, Va., on a concrete road, on a grove crowned eminence, is a large brick residence which is now for rent or sale. This adjacent State Sanitarium has usually a waiting list of several months, and consequently discharges all patients at the first moment possible; hence a good private tuberculosis plant here would offer a prompt and convenient initial aid, and a longer continuation of atten-

tion, that is often needed. This residence has some twenty-five rooms, hot water heat, etc., and could easily give dining service for a hundred, or more, patients, with a fine grove and wide terraces for tents and shacks.

For details, write P. O. Box 416, Charlottesville, Va.

Obituary

Dr. Robert Jackson Yates,

Of Potomac, Arlington County, Va., died at his home at that place, July 8, at the age of sixty-one years. Death was due to Bright's disease. Dr. Yates was a native of Culpeper County, Virginia. After graduating at William and Mary College, he entered George Washington University Medical School, Washington, D. C., and received his degree in medicine from that school in 1907. Dr. Yates was a member of the Medical Society of Virginia, a Mason, and mayor of the town of Potomac. He was also anesthetist to the Alexandria Hospital. He is survived by his wife, one daughter and three sons.

Dr. Linwood D. Batkins,

Of Richmond, Va., died at a local hospital, August 24, after a brief illness. His health had not been good for sometime but his condition was not regarded as serious until recently. Dr. Batkins was born in Richmond fifty-two years ago and graduated from the Medical College of Virginia in 1894. He had served as one of the city's physicians to the poor for twenty-eight years, and had many friends among those whom he had served. He was a Mason and a member of his local and State medical societies. His wife and two sons survive him.

Dr. George Thomas Divers,

Of Stuart, Va., died from apoplexy, in his hospital at Stuart, on the morning of August 29. Dr. Divers was forty-four years of age and studied medicine at the University College of Medicine, Richmond, from which he graduated in 1909. He was prominent in the business and professional life of Stuart and was physician in charge of St. Martin's Hospital at that place. At the time of his death, Dr. Divers was president of the Patrick-Henry Medical Society. He was also a member of the Medical Society of Virginia. His wife survives him.

Dr. Bernard W. Switzer,

Lexington, Va., died in his home at that place September 3, as a result of heart disease. He was born at Mt. Crawford, Va., fifty-six years ago and, upon completion of his academic education, studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1893. He was a Mason, a member and secretary of the Rockbridge County Medical Society at the time of his death, and had been a member of the Medical Society of Virginia since 1896. Dr. Switzer specialized in diseases of the eye, ear, nose and throat. He is survived by his wife and two brothers. *

Dr. Patton Kimbrough Pierce,

Eutaw, Ala., died in the hospital at Harrisonburg, Va., August 18, as the result of a broken neck suffered several days prior to that time, when his automobile overturned in rounding a curve on the Elkton Pike near Harrisonburg. Dr. Pierce was a native of Alabama and thirty years of age. He received his medical education at the University of Virginia, from which he graduated in 1921, shortly thereafter joining the Medical Society of Virginia. Dr. Pierce was in Virginia, visiting his wife's family at Elkton. His sister-in-law, who was in the car with him, was also seriously injured. Other occupants were unhurt. Dr. Pierce is survived by his wife, formerly Miss Helen Hammer connected with the University of Virginia Hospital.

Dr. Berton Osburne Wire,

Of Grundy, Va., died in a hospital at Welch, W. Va., August 25, from injuries sustained in an automobile accident a few hours earlier. Dr. Wire was thirty-three years of age and graduated from the Medical College of Virginia in 1915. His wife survives him.

Dr. Herbert Pennell Moseley,

Of Farmville, N. C., was shot to death on August 20, by a negro, apparently drink crazed, when Dr. Moseley went to the home of the negro in response to a professional call. Dr. Moseley, who was thirty-seven years of age, graduated from the University College of Medicine, Richmond, in 1912, following which he served an internship at St. Vincent's Hospital, Norfolk. He was a World War veteran and a Shriner. He is survived by his wife.

Announcing the Fourth Annual Physiotherapeutic Convention

ARRANGEMENTS have been perfected for a really elaborate Physiotherapeutic Convention to be held at the

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1925

There will be lectures, clinics and demonstrations, all in charge of well-known physicians and surgeons. For purposes of demonstration, carefully prepared papier-mache or wax figures and models will be used, and in some instances live models will be employed for this purpose.

List of Speakers

MILES J. BREUER, M.D.
Lincoln, Neb.
W. B. CHAPMAN, M.D.
Carthage, Mo.
M. H. COTTE, M.D.
Chicago, Ill.
ELKIN P. CUMBERBATCH, M.D.
London, England.
LEO C. DONNELLY, M.D.
Detroit, Mich.
EMILE C. DUVAL, M.D.
Chicago, Ill.
RAYMOND F. ELMER, M.D.
Chicago, Ill.
J. C. ELSOM, M.D.
Madison, Wis.
F. H. EWERHARDT, M.D.
St. Louis, Mo.
GEORGE W. FUNCK, M.D.
Chicago, Ill.
J. U. GIESY, M.D.
Salt Lake City, Utah.
E. C. HENRY, M.D.
Omaha, Neb.
A. R. HOLLENDER, M.D.
Chicago, Ill.
WM. E. HOWELL, M.D.
Chicago, Ill.
ARTHUR E. JOSLYN, M.D.
Lynn, Mass.
D. FRANK KNOTTS, M.D.
Chicago, Ill.

The Convention will be subdivided into the following sections:

Eye, Ear, Nose and Throat.
Gynecology and Urology.
Orthopedics and Surgery.
Dermatology, including Malignancies.
Neurology.
Internal Medicine and Pediatrics.
Industrial Physiotherapy.
Miscellaneous Practice.

Special rooms will be provided on the mezzanine floor for smaller groups attending clinics and round table discussions, and for demonstrations to follow up interesting talks delivered from the platform. There will also be clinics at Chicago hospitals.

Admission will be by card only. A. M. A. rules will apply throughout; either an A. M. A. fellowship card or its equivalent will ensure admission. Arrangements for accommodations, etc., will be attended to on request by the Educational Department of H. G. Fischer & Co., Inc.

A record attendance is anticipated. There were over seven hundred physicians and surgeons present at last year's Convention, and this year's record will be much higher. Those interested are advised to make plans now and

List of Speakers

DISRAELI W. KOBAK, M.D.
Chicago, Ill.
GUSTAV KOLISCHER, M.D.
Chicago, Ill.
WILLIAM A. LURIE, M.D.
New Orleans, La.
G. BETTON MASSEY, M.D.
Philadelphia, Pa.
FREDERICK H. MORSE, M.D.
Boston, Mass.
ROSWELL T. PETTIT, M.D.
Ottawa, Ill.
T. HOWARD PLANK, M.D.
Chicago, Ill.
CURRAN POPE, M.D.
Louisville, Ky.
ISRAEL L. SHERRY, M.D.
Chicago, Ill.
CHAS. E. STEWART, M.D.
Battle Creek, Mich.
HARRY M. THOMETZ, M.D.
Chicago, Ill.
ALBERT F. TYLER, M.D.
Omaha, Neb.
FRANK H. WALKER, M.D.
Shreveport, La.
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St. Louis, Mo.
A. L. YOCOM, JR., M.D.
Chariton, Iowa

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Original Communications

SIMPLE GLAUCOMA.*

By JOS. A. WHITE, A. M., M. D., Richmond, Va.
Professor of Ophthalmology and Oto-Laryngology, Medical
College of Virginia.

I have often wondered why that form of eye trouble with occasional and intermitting hypertension with all the disastrous results of the latter to vision, with no subjective symptoms except gradual loss of sight, is called *simple* glaucoma. It certainly is anything but a "simple" affection. Probably there is no more serious or dangerous disease that could afflict an eye, or one where the ultimate outcome, in most cases, is so surely complete blindness. It is so insidious in its approach, so free from marked objective or subjective symptoms that would herald its advent, that the most expert practicing physicians, and many ophthalmologists, would not recognize it before it is too late to be of service.

Hence, we see simple glaucoma only when it is more or less advanced, when failing vision calls its victim's attention to the fact that there is something the matter with his eyes, often when one eye is practically blind. The attacks of eye discomfort, intermitting periods of cloudy or misty vision, colored rings about lights, congestion about the eyeball, which are present in the prodromal stage of congestive glaucoma, are absent, the eyeball looks normal, vision is only slightly impaired, if at all, and there is nothing to awaken anxiety in the patient to make him consult an ophthalmologist. The pupil is not dilated nor the anterior chamber shallow, except in a small number of cases, and then only very slightly, the refractive media are clear, the central vision may be practically normal, even when the field is badly contracted, and the nerve decidedly cupped.

The repeated and frequent use of the tonometer will show that at times we find hypertension, and again normal tension. From

some unknown cause, the eye changes so often in its intraocular pressure that it is somewhat bewildering, but slowly and surely the field will contract and the cup deepen.

In most cases, none of the special scotomata indicative of the trouble will be found in mapping the field, but if we see the case in time, even in its earliest development, the diagnosis can be usually made clear by an expert ophthalmologist, although sometimes it is not easy.

Many of these cases are seen only after one eye has been damaged to some extent, but if we do see them in the very earliest stage, we are confronted occasionally with some difficulty in diagnosis. The ophthalmoscope does not settle the question. We often meet a moderate cupping of the nerve, with little or no contraction of the field, and with no variation from normal in the tonometric readings, and we sometimes see what looks like a deep physiological excavation, quite different from the cupping of glaucoma, and still find other evidence of glaucoma in a typical contraction of the field, and with intermittent periods of tension. Hence, we are puzzled to decide between a commencing glaucoma, or an atrophic process in the nerve. If we can make out a Bjerrum scotoma, or Seidel enlargement of the blindspot, we have something to help in the diagnosis, but how often can we do this?

I must confess I am not very expert in doing this because of the unsatisfactory answers of the patients when taking the fields, or from faulty technique. But, when all is said, and the diagnosis is beyond cavil, what advice should we give the patient? We know the eventual bad outcome in nearly all cases, whether operated or not, whether operated on early or late. Medicinal treatment locally with myotics and dionin, and, internally, strychnia and nitro-glycerine, will help to put off the evil day. The operations most commonly resorted to are iridectomy, iridotaxis; Lagrange or trephining may do the same thing, but when it comes to operating on a

*Read before the Virginia Society of Ophthalmology and Oto-Laryngology, Winchester, Va., May 7, 1925.

good seeing eye, we come to an impasse. The sooner it is done, it is claimed that there is greater chance of success; but when the patient asks, "Will it stop the disease?" "If it does not stop the disease, will it defer the evil day?" "Is there any risk to sight in the operation?" What can you say? Can you truthfully tell him there is no risk, when in fact, there is a good deal of risk. If we are considering operation, is Jackson's test as valuable in this form of glaucoma as in the congestive types? I have used it without any increase in tension or pulsation of the vessels. If there is any rule about operation, I might say that it is advisable when myotics do not keep down the tension. If we operate, what operation should be done? Iridectomy is more generally done, is successful rarely, is a detriment sometimes, and occasionally disastrous in its consequences. Trephining with or without iridectomy gives no better record. Langerange operation is probably more dependable for arrest of the disease. Iridotaxis has had very favorable reports, but like other newer operations, as, for instance, Jervy's, we cannot tie to it until several years have passed because cases operated on by any method or without any treatment except myotics go along for years before becoming blind, but going surely to that goal—only some go faster than others.

Why is it that operations performed exactly alike, ideally done, in as far as an operation can be ideal, have such different results—in a few cases all that we could expect, but in the majority seemingly of no service in arresting the pathological process? Is it not due to the difference in the eyes operated on rather than to the difference in the method of operating? May not some eyes require very little wound filtration to reduce the tension, and others abundant drainage, and how can we differentiate in advance? Is it not because the syndrome of glaucoma simplex is protean in its various manifestations, that whilst in most cases the hypertension is more or less the predominant symptom, there are other causes at work that bring about disaster to sight, even when we are successful in reducing this one symptom to a minimum? In fact, I have seen cases of an apparently glaucomatous cup with failing vision when I never found the tension above what we call normal. Does

this mean that normal tension for some is not normal in others? Or that under certain conditions some eyes can give all the symptoms of glaucoma simplex because of some defect in its structure and especially some weakness about the lamina cribrosa without any manifestations of so-called hypertension? What do we know about glaucoma simplex anyhow? I have been trying for thirty or forty years to acquire some knowledge of the subject. I have read enough articles about it to fill this room, but they never put into my head a single clearly defined idea of the exact cause of glaucoma simplex, and I am still groping, still reading.

Dr. Verhoef's latest production, "The Pathogenesis of Glaucoma," is a masterly addition to the subject, and whilst knocking the props from under most of the proposed explanations, leaves us nothing definite to depend on in this form of glaucoma.

But his reasoning appeals to me. Briefly, it amounts to this: The aqueous is excreted mostly by the ciliary processes, and whilst most of it passes into the posterior chamber and thence to the anterior chamber and, out of the eye by the anterior exit channels, part filters through the vitreous, as it has been demonstrated that a free exchange of fluid between the vitreous and the posterior chamber takes place in the normal eye. Now, certain senile changes which we do not clearly understand take place, which cause an excess of mucin (according to Verhoef) to be secreted into the vitreous, decreasing its permeability, and the permeability of the anterior hyaloid: the secretion from the ciliary body is obstructed in its passage through the vitreous, increase in its volume takes place, enough to push the lens forward, slightly narrowing the anterior chamber, the iris is thrown against the ligamentum pectinatum, anterior peripheral adhesions take place, and the filtration anteriorly is obstructed, resulting in plus tension. This could occur independent of the size of the lens, for we see glaucoma simplex in eyes with small as well as large lenses.

Granting this is a correct view of the beginning of the pathological process, why will not energetic use of myotics in the very earliest stage prevent the formation of these anterior peripheral adhesions, by keeping the iris root away from the ligament, and thus

allow it to perform its function of excretion?

There are still, however, many things about an eye itself that we cannot explain satisfactorily; there are many other things in the relation of the eye to the general economy, and especially to the vascular and nervous system, that are practically unknown, and these latter may have a very important bearing on the production of this peculiar affection. These unknown factors in each case (possibly a law unto itself) may have a powerful influence on the results of the most masterly done operation, and make or mar it.

I read occasionally reports of wonderful results from operative procedures in this trouble, but my experience has not given me any confidence in my ability to equal them, any more in the future than in the past. I am of the opinion many of these cases were early stages of congestive glaucoma. Years ago, I was enthusiastic about operations in glaucoma, and I have done many, but as I saw more of these cases and watched them longer, I lost my enthusiasm, and have become rather pessimistic. If operation is ever to do any real and lasting good, it should be done as a preventive means, when the eye is still sound in practically every way, but who will take the risks of operation, even as small as these may be, on a sound eye? I have seen an attack of glaucoma follow an iridectomy when there were no symptoms to call attention to its previous existence. Possibly, some of you may have had the same experience. But after the field begins to contract, however slightly, and the lamina cribrosa to yield to the intra-ocular pressure, operation does not offer much more, if any more, than local and internal treatment. I believe if I were a victim of this disease, I would decline operation and trust to local treatment.

To exemplify the above remarks of Simple Glaucoma, I selected eight cases from among the many of what I had kept records, exhibited the field charts, gave the treatment and the final results in each case. Comparing the results I found them so contradictory that one is rather confused in arriving at any satisfactory conclusion as to what to do in any given case. One operated on by me fifteen years ago still retains normal vision. Another, who declined operation nine years ago, has kept good sight under myotics. One who was already blind in one eye, and on which I did an iridotaxis with satisfactory cosmetic effect, kept good vision for four years under myotics, but on a European trip two years ago was persuaded to have a trephining done and in less than a year was

blind. Had he stuck to the local treatment I believe he would be seeing today.

Another came to me in 1916, nearly blind in one eye and good sight in the other. Under myotics the sight continued good for four years. Late in 1920, this case went to New York and a Lagrange was done. The sight was good until February, 1925, when the field began to contract again and the vision to deteriorate.

Another very recent case in a woman under forty years of age, one eye V-20/200 and the other 20/15, was advised to use myotics a while, but she, too, went to New York, had an iridectomy done on the bad eye and a combined iridectomy and trephining on the good eye. In less than a year the bad eye retained the same sight, the good one was reduced to 20/30 with a contracting field and a bad outlook.

One of the cases has been under observation four years. When I first saw him the diagnosis was clear and I advised operation on the eye first affected. I did an iridectomy and the vision remained normal for two years and then gradually reduced to 20/50, and reading No. 2 type what it is today. The other eye remained normal under myotics, although both fields are somewhat contracted.

I am unwilling to advise operating on the second eye. At times, both eyes show a slight increase in tension but rarely above 30.

I could have shown many more paralleling these in results, but the greater the number the more uncertain the conclusion to be drawn as to which to advise, operation or myotic treatment. Whichever we may advise, if the ultimate outcome is bad, we wish we had done the other. In fact, the majority of these cases eventually go blind and the last word has yet to be said about the treatment of simple glaucoma, but I believe, from my experience, that the odds are in favor of the treatment by myotics in delaying the evil day.

Sometimes myotics will not reduce the tension sufficiently or contract the pupil as they should, and such cases require some operative procedure. Others change and show symptoms of congestion, etc., and these also require operation.

200 East Franklin Street.

PATHOGENESIS AND CHOICE OF OPERATION IN DIFFERENT TYPES OF GLAUCOMA.*

By WILLIAM ZENTMAYER, M. D., Philadelphia, Pa.

Few surgeons in this country operate upon a sufficient number of glaucoma cases to decide from their own experience alone what should be the operation of choice in the various types of this disease. Furthermore, in the type in which controversy is active, and often acrimonious, the course of the disease is chronic and the cases pass from under our observation, so the end results of any operative procedure are frequently unknown to the surgeon. In coming to a decision we are therefore compelled to study the consensus of opinion and the statistics of those whose judgment we re-

*Read by invitation before the meeting of the Virginia Society of Oto-Laryngology and Ophthalmology, in Winchester, Va., May 7, 1925.

spect, and to scrutinize with the utmost care the claims naturally aroused by paternity of certain operations. Moreover, we will be influenced by the views we adopt as to the pathogenesis of the disease.

Medicine seems not to have escaped the tendency of the times to attack the old order and overthrow what appeared to rest on a firm basis. This is illustrated in the recent views which have been advanced concerning the secretion and filtration of the fluids of the eye, and the attitude toward the older theories regarding the pathogenesis of glaucoma. For instance, Magitot believes that the aqueous humor is of the same nature as the cerebrospinal fluid and therefore quite different from the lymph of the eye, with which it never mixes nor comes into direct contact. The eye possesses independent lymph channels for the anterior and posterior segments. The aqueous is secreted at the beginning of life by special neuroglial cells and is replaced by a process of dialysis from other glial cells. He denies its origin from the ciliary body. The purpose of the choroid is the maintenance of the normal tonus of the eye. He does not believe in the perpetual secretion of the aqueous or its escape at the angle of filtration.

For this reason, I would like to present that which to me seems rational in the light of what is known regarding the pathology and pathogenesis of the disease, and which has influenced me in my choice of operations.

It has always seemed to me that in considering the pathogenesis of primary glaucoma not enough stress has been placed upon what we know of the underlying causes of certain secondary glaucomas. In almost all secondary glaucomas we have positive evidence that the increase in intraocular tension is caused by closure of the filtration angle. One need but instance glaucoma following perforating wound of the cornea, ulceration of the cornea with prolapse of the iris, dislocation of the lens, wounds of the lens, intumescent cataract. Secondary glaucoma arising in the course of cyclitis or intraocular tumors is caused indirectly by the same mechanism. All this is presumptive evidence that the cause which operates to produce hypertension in such eyes acts to produce it in primary glaucoma.

The outstanding etiologic factor in primary glaucoma is age. Advanced age is associated

with sclerotic processes not only in the vessels but in the fibrous coats and their extensions, the sclera, cornea and pectinate ligament—with these changes we find a volumetric increase in the lens. The second important etiologic factor is hyperopia with its hypertrophied ciliary body and an eye whose dimensions are relatively small as to the size of the adult lens.

It is not necessary here to explain how these conditions operate to interfere with the egress of fluids from the anterior filtration channels of the eye. That they do so there can be no doubt, and I believe it to be the way in which glaucoma may be induced.

I would not have it inferred that I believe the etiology of glaucoma to be as simple as this. That there are many underlying disturbances which play an important role in the disease is certain, but the cause of the hypertension is most surely, in most cases of primary glaucoma, to be found in the retention of the fluids of the eye.

The important exciting causes are mental and physical exhaustion from various causes operating upon the vasomotor control of the eye and the rest of the body.

OPERATIONS.

In the choice of an operation in a given case of glaucoma, two important points are to be considered, the type of glaucoma and the stage of the disease. If we hold to the old view that the cause of ocular hypertension is a blocking of the normal anterior channels of filtration, then we will select that operation which best opens up these channels.

ACUTE GLAUCOMA.

That a basal iridectomy can do this in acute congestive glaucoma we have ample anatomic proof. That it is permanent and effective time has shown. The success of the operation is probably due to the fact that because of the pain and the greatly impaired vision we see and operate upon these cases before adhesions have formed in the vicinity of the filtration angle. That the result is usually permanent may be due to the fact that there is some acute disturbance of metabolism or vasomotor control which precipitates the attack, and that subsequent systemic disturbances of this nature, which doubtless occur, fail to produce hypertension because of the permanent opening up of filtration by the iridectomy.

No other operation is to be thought of in the treatment of this type of idiopathic glaucoma. As to the time at which the operation should be done there may be a difference of opinion. We know that the first attack of glaucoma even in non-operated cases often passes off without leaving permanent impairment of visual function. As an immediate iridectomy is often difficult to perform and is accompanied by some hazard because of the exceedingly high tension, I often delay operation until an attempt has been made to reduce the tension by the frequent use of eserine, morphia, hot stupes and purges. If the pain subsides and the tension diminishes the operation can be postponed until conditions are more favorable. If the case is of the fulminating type immediate operation must be risked, as permanent blindness may result if the exceeding high tension is not at once relieved.

SUBACUTE GLAUCOMA.

Many of the cases of subacute congestive glaucoma that we see have existed for some time before they come for treatment and this, together with the fact that they often present evidences of an actual low grade inflammation, makes it difficult to free the iris at its base by an iridectomy. They are therefore, in my opinion, best treated by the formation of a filtering scar or a cyclodialysis.

CHRONIC SIMPLE GLAUCOMA.

We come now to a consideration of the type in the treatment of which there exists great difference of opinion, not only as to whether miotics or operation should be employed, but as to the proper operative procedure when this is the mode of treatment decided upon. I should like to digress to state my views regarding the indication and value of the miotic treatment. Expressed in general terms, miotics may be tried in all cases where the tension does not range above thirty and in all cases in patients over sixty years of age, in private practice. In dispensary practice, except in patients with moderate tension or over sixty-five years of age, some form of operation is the only safe procedure. Another class of patients requiring operation are those who cannot be seen at regular intervals for checking up the progress of the disease. Miotics may be continued so long as tension is kept at the upper limit of normal (to borrow an expression of Dr. Weeks), the pupil is controlled,

the peripheral field holds, and no scotoma appears in the central area. Some cases of chronic simple glaucoma in young people seem self-limited.

All the operations commonly in use which more or less permanently reduce the tension in chronic simple glaucoma are concerned with the iris, and this probably results in freeing some portion of the filtration angle. According to Holth, who is a strong supporter of the operation introduced by Herbert and named by Borthen iridotaxis, the mechanism of the procedure is a stretching of the iris with a consequent thinning of its base in that portion of the membrane opposite the incarceration. Some believe its effect to be due to filtration at the site of the scar while others attribute it to atrophy of the ciliary processes over that portion of the ciliary body concerned in the operation. Cyclodialysis can scarcely be considered as exerting a permanent effect on hypertension, but it may be repeated.

The operation of peripheral iridotomy, devised by Curran, has gained some advocates. It is based on his view that glaucoma is caused by a too close contact of the sphincter of the iris with the anterior capsule of the lens, preventing the aqueous in the posterior chamber from finding its way into the anterior chamber. Granted that this is the cause—the condition can be relieved as well by an iridectomy with less danger and the further advantage that the result is more likely to be permanent and more effectual.

In the great majority of cases of chronic simple glaucoma it is possible up until an advanced stage of the disease to open up the natural channels of filtration, and the operation of choice should be the one which accomplishes this most effectually and permanently; and properly performed iridectomy meets these requirements. As is well known, and emphasized by Collins, a wound of the iris made under aseptic precautions and kept bathed with aqueous humor, never forms granulating tissue, the cut surface remaining always open; this applies also to the corneal and sclero-corneal tissue. Because of this we secure by a complete iridectomy more extensive opening of the other channels of egress for the aqueous humor than we do by a small peripheral basal iridectomy.

An extremely narrow anterior chamber can no more be considered an obstacle to the per-

forming of iridectomy in chronic simple glaucoma than in the acute type, in which we all do iridectomies. In old cases of chronic simple glaucoma where prolonged contact of the iris with the cornea has resulted in true adhesions, and where the iris is degenerated, it is difficult at all times, and impossible sometimes, to get a basal iridectomy. In such cases the Elliott operation, by securing vicarious drainage, may be performed.

Have we sufficient evidence to substantiate the claim that in cases where the scotomatous areas approach fixation the Elliott operation does not endanger fixation? If we have, this would seem to be a valid claim for its employment, although it is probably true, as Weeks states, that this area will be ultimately lost whatever the operation. At present convincing evidence is wanting. However, since the question is still open, I am in the habit of doing sclero-corneal trephining when this type of scotoma is present.

The objections to the Elliott operation are that iritis too frequently results, that secondary changes, usually in the development of lenticular opacities, sometimes occur either immediately after the operation or much later,—probably the result of hypotonus,—that reduction in tension is not always permanent and, lastly, that late infections relatively frequently occur. These, I think, more than counterbalance the undoubted brilliant results sometimes obtained in widening the field of vision and improving central vision.

Iridotaxis is growing in favor. This is probably due to its ease of performance and freedom from danger of injury to the lens. Its effect on tension is satisfactory. Even when the technique is perfect the danger of secondary infection and sympathetic inflammation is considerable. Up to the present I recall but one reported instance of late infection, but very few operations of this type have been performed. Had it been done as often as has trephining it probably would occur frequently enough to constitute a serious objection. It may be of interest to note that in two of my cases where the iris slipped partially back into the anterior chamber, so that the only effect was to make a long vertically oval pupil, the effect on the tension was good.

In congenital glaucoma the cause of the hypertonus is again an obstruction to the egress of the fluids of the eye from the an-

terior filtration channels. Usually this is due to a partial or complete absence of Schlemm's canal, though other causes are atypical development of the cribriform ligament (Collins), and prenatal inflammation resulting in adhesion between the iris and cornea. Because of this and also because of the great distention of the ocular tissues we have an entirely different problem to meet from that of primary glaucoma. Iridectomy is only safe in the very beginning of the disease, and trephining has not proved satisfactory. Repeated posterior sclerotomy offers the best hope of arresting the disease.

To cover the subject assigned me and yet not make the paper too long, I shall but briefly refer to certain types of secondary glaucoma.

The hypertension which often complicates obstruction to the central vein of the retina is difficult to combat, but the condition does not seem to me to be quite so hopeless as stated by some surgeons. Owing to the vascular degeneration any operative procedure which brings about a sudden lowering of the tension is fraught with danger. Theoretically (and practically, as proven in two cases of my own) cyclodialysis is the logical operation, as the lowering of the tension by this method is quite gradual, forty-eight hours often elapsing before the maximum effect is reached. When this has been attained an iridectomy may be done.

Secondary glaucoma often occurs in serous uveitis, especially during the use of a cycloplegic. It is due to an alteration in the composition of the aqueous and the deposition of fibrin and pigment in the spaces of Fontana and while transient interferes with the use of the much needed cycloplegic. Fortunately it is readily controlled by a paracentesis of the anterior chamber, the small corneal wound being kept open by the daily introduction of the point of a spatula.

In occlusion of the pupil early iridectomy may be successful in lowering the tension, but where iris bombe has developed transfixion of the bulging iris with a narrow cataract knife offers the best hope of success.

In traumatic cataract the swollen cortical should be evacuated.

1506 Spruce St.

DISCUSSION OF PAPERS BY DRS. WHITE AND ZENTMAYER.

Dr. Harry Gradle, Chicago: It is with great hesitation that one rises to discuss papers by Dr. White

and Dr. Zentmayer, especially if one permits himself to differ even in some minor points. When men of their capability, experience, and erudition speak upon a subject, there is but little left for one to add.

It would seem as though Dr. White were ultra-pessimistic as to the ultimate outcome of all cases of glaucoma simplex. Undoubtedly, there is a large proportion of cases of a malignant character that lead to eventual blindness regardless of the character of treatment and the best medicinal and surgical treatment merely postpone the days of total blindness somewhat. But on the other hand, there is a fair sprinkling of cases that respond fairly well to miotic treatment for a time and then gradually begin to depreciate slightly in vision, and visual fields to run an intra-ocular tension that is just slightly above what is regarded as the upper limits of normal. Such cases are good surgical risks and most frequently, a technically well executed operation will aid miotics in maintaining vision until the end.

The indication for operation in such cases must be based upon the gradual loss of vision; upon the gradual decrease in the visual fields without acute or prominent scotomatous areas; upon the gradually progressive cupping of the optic discs; upon the curve of intra-ocular tension that remains persistently above 26 to 28 m.m. Hg. and refuses to decrease more than five millimeters of mercury under vigorous massage, and upon failure of the tension to undergo a marked reduction when adrenalin is injected subconjunctivally.

The operation of choice falls into one of three classes and must be decided upon by the aforementioned indications. The first type of operation is one that aims to restore the normal outlet of the intra-ocular fluids and is best illustrated by the classical iridectomy. The second type aims to alter the intra-ocular outlet of the fluids in a way that is not yet clearly understood; the cyclodialysis and the Curran peripheric iridotomy are of this type. The third type aims to establish an extra-ocular outlet for the intra-ocular fluids, usually by subconjunctival fistulization and is best illustrated by the Elliott trephining operation or the iridotaxis.

Dr. Charles A. Young, Roanoke: I have used adrenalin both sub-conjunctivally and on pledgets of cotton, in the upper fornix, as recommended by Dr. Gradle, and found that it reduced tension in the majority of instances from 15 to 20 degrees, on McLean Instrument, but could not see that it in any way aided in the treatment of the disease as its action was seemingly very transient. I would like to know what success, if any, Drs. Zentmayer and White have obtained from the use of this drug.

THE SURGICAL TREATMENT FOR HYPERTHYROIDISM.*

By ROBERT LEE PAYNE, M. D., F. A. C. S., Norfolk, Va.
Surgeon, St. Vincent's Hospital.

This is a big broad subject and will be found difficult to cover in a paper which the limited time of this meeting will permit.

It is interesting to look back over one's experience with the treatment of the thyroid gland and to note how readily history, both

medical and surgical relating to this gland, repeats itself. In the earlier years of thyroid surgery practically all cases that we saw came late for operation. Late operations contributed largely to a high mortality and this in turn created the vicious circle in surgery in which a high mortality made in turn a late operation.

There is no study more interesting than the problem of the thyroid, but the dictum of Kocher must always be kept in mind, that it is not necessary for the medical man to act surgically, but it is always necessary for him to think surgically and in this connection Guerry has aptly pointed out that it is not necessary for the surgeon to act medically but very essential that he think medically. We may probably ask what benefit the patient may get from the surgical treatment of thyroid disease. In every case of hyperthyroidism, provided the case is handled intelligently by both surgeon and internist, the patient may expect an immediate, prompt, and almost always complete relief from his or her symptoms. In addition, if all focal infections are eradicated, all intoxications are eliminated, and psychic disturbances are put under control, the late results following treatment directed to the thyroid may universally expect to be good. If not entirely good, there will usually be a very marked improvement. Not only does operation in hyperthyroidism offer considerable less risk for life than that contributed by the disease, but there is also a relief following the operation which is decidedly more prompt than that following the long uncertain rest cure. More important, operative treatment cuts short the progressive deterioration of the vital organs, principally the heart, liver and kidneys, giving immense advantage to the patient, for if the rest cure fails to relieve, the amount of progressive damage to vital organs will probably be increasing during the period of rest cure. Surgery in conjunction with medical advice from a real internist offers a primary mortality of around 2 per cent, 85 per cent of complete and symptomatic cures, about 7 per cent received marked benefit, and only a small number, about 5 per cent, apparently are not helped. Taking into account, therefore, the slight primary mortality and the immediate promising and remote results, we may consider that, in hyperthyroidism, what is

*Read in a symposium on Thyroid Disease before the Norfolk County Medical Society, March 9, 1925.

necessary for cure is like that in appendicitis entirely dependent upon a proper diagnosis.

There are six pathological conditions of the thyroid gland which are amenable to surgical interference, the most important of these being, of course, the exophthalmic type of goitre. Next in importance is the adenoma with hyperthyroidism. Third, the diffuse colloid goitre, which often obtains a great size, is often serious and sometimes produces grave pressure symptoms. Fourth, we have the adenoma without toxic properties. Fifth, thyroiditis; and, finally, malignancy.

EXOPTHALMIC GOITRE.

This is a constitutional disease which is probably due to an excessive abnormal secretion, having a peculiar nervous syndrome—exophthalmos, an increased metabolic rate with the accompanying secondary manifestations and showing pathologically a diffuse hypertrophy and hyperplasia. The condition is often severe, of overwhelming intensity, beginning abruptly and terminating fatally in a few months. This acute condition, however, will often be followed by a remission, which may last for many months, only to be followed again by another exacerbation of even greater severity. At times, however, the onset is extremely gradual and the disease may run a prolonged mild course with very little variation.

We do not know the cause of exophthalmic goitre but the pathology of this condition is definitely known, and is always a constant hypertrophy-hyperplasia. All the evidence points to an excessive amount of secretion from this gland, and all methods of treatment surgically aim to diminish the output of the gland by a reduction of its nerve and blood supply by either surgical ablation or by some form of treatment such as radiation or the injections of boiling water, which will destroy the substance of the gland. It has always been considered necessary to preserve a sufficient quantity of the normal gland to carry on the normal functions incident to the welfare of the patient. In certain stages, particularly the acute toxic exacerbations of the disease, the removal of the gland is attended with great danger; particularly, danger is encountered immediately preceding, during or following a crisis, and in such instances it is always

best to withhold radical surgical procedures, substituting for them, on the other hand, radium, the injections of boiling water, or ligations of one or both lobes. The improvement in the patient after conservative preparatory measures, coupled with proper long rest, serves to make the radical thyroidectomy possible with a far greater degree of safety than would otherwise have been possible. Some of these cases remain apparently well, but the majority without major thyroidectomy suffer relapses sooner or later.

In the earlier surgery of this gland, it was a custom to do only a partial removal of one or both lobes, but today the routine operation for the removal of goitre is even more radical, consisting of a more or less double resection of the thyroid gland, with an effort to preserve only a small portion of the posterior portion of each lobe, equivalent to one-sixth of the normal gland.

Given a case of exophthalmic goitre, if properly handled, we should expect relief in 80 per cent of all cases, and the failure to cure these conditions by surgery may be attributed to one of three causes:

First, incomplete removal of the hyper-secreting gland.

Second, delay of the patient in seeking surgical relief until visceral changes have taken place, and,

Third, the failure to eliminate the various foci of infection after the operation.

ADENOMA WITH HYPERTHYROIDISM.

This is a definite clinical entity and must not be confused with the exophthalmic type of goitre. The condition develops insidiously and without apparent cause, not only developing gradually but progressively. It is particularly in this type that iodine is so dangerous, as well as radiation therapy, for the symptoms may be induced abruptly by the administration of iodine to a patient with a simple adenoma and without hyper-secretion. The clinical picture often resembles that of the syndrome of cardiovascular disease, and on account of the slow and progressive onset the patient does not realize the gravity of his condition. The heart shows great irregularity or symptoms of decompensation take place. Consequently, owing to the delay in coming to operation, these cases often develop advanced

visceral changes which materially add to the risk of operation and interfere materially with the possibility of cure afterwards. It is true that the successful removal of a toxic adenoma is usually followed in about two weeks by the complete disappearance of the hyperthyroid symptoms, but it is hard to cure the changes in the liver, heart and kidneys which may have taken place before the patient came for diagnosis and proper treatment. I consider the toxic adenoma the most treacherous of all types of pathology found in the thyroid, for the exophthalmic type is so much more outspoken, whereas we are often led into iodine or using X-ray and radium for the smooth symmetrical enlargement of the thyroid, thinking it to be the exophthalmic type of hyperplasia, when, in reality, after the hyperplasia is reduced by radium therapy, there will be found a definite adenoma at the bottom of the toxic symptoms which in turn are invariably made worse by any form of treatment other than surgical eradication.

The simple adenomas are a distinctly simple problem, occurring either as single or multiple masses, and usually come late in the second and third decade of life. The symptoms produced are usually the result of the pressure of the growth on the surrounding structures and vary according to size and location of the tumor. Adenoma attain great size and a goodly portion of them project below the sternum and become intrathoracic. In the Innsbruck Clinic at Frieberg, out of 1,473 cases of thyroid disease, 487 or 32 per cent were found to be intrathoracic, that is, a greater proportion of the enlargement was below the level of the clavicle. Symptoms produced are great shortness of breath, with an apparently small tumor, marked displacement of the trachea and signs of pressure on the great veins of the neck that cannot be explained by any visible tumor. The neck veins fill from below when they are emptied by the finger, and the arm veins do not empty when the arm is held high. There may be paralysis of the recurrent nerve or sympathetic paralysis with a regression of the eyeball, contracted pupil or ptosis, all from unusual pressure. Sometimes surgical removal of these cases is more difficult than the recognition of the disease.

DIFFUSE COLLOID GOITER.

This is the commonest enlargement of the gland, is usually physiologic in character and occurs principally in adolescence. According to the work of Marine, it is well-established that iodine insufficiency is the causative factor, and that not only occurrence of this condition but also the enlargement itself can be overcome by proper administration of iodine. The goitre is unassociated with symptoms other than those incident to pressure, but when the enlargement develops in a young girl of unstable nervous mechanism her symptoms are often mistaken for the hyperthyroidism of the exophthalmic type. In many instances the two conditions may be readily separated, but in many cases—especially where the neurotic tendencies are over-marked—it becomes extremely difficult by clinical means to ascertain the difference between the two diseases. It is in such conditions that repeated basal metabolic readings contribute wonderfully to the accuracy of diagnosis. The metabolism rate of the patient with colloid goitre would be normal or slightly subnormal, while that of the patient with the toxic type of enlargement is always above normal. Unless the enlargement of the colloid type is associated with masses suggesting adenoma or the dimensions become so great as to give pressure symptoms, surgery is not indicated. On the other hand, diffuse colloid goitre will usually disappear spontaneously around the twenty-fifth year, but it can be induced to go away by the proper administration of iodine or thyroxin. After the gland has thus been made to retrogress, iodine should actually be given as a preventive measure to prevent a recurrence of the enlargement. Where pressure symptoms are a factor, then surgery should be chosen, and in this condition the operative risk is never over 1 per cent, and is usually around one-half of 1 per cent. This non-surgical aspect of colloid goitre is important when compared with simple adenoma, which may become toxic, and should always be removed by surgical methods though simple at the time of recognition.

THYROIDITIS.

Thyroiditis is a rather uncommon condition, but I have been fortunate enough to see two definite cases of thyroiditis upon which

operation was done, the diagnosis being confirmed in the laboratory.

There are two types of inflammation, the non-tubercular and the tubercular. In the simple inflammation there is usually a history preceding of an acute infection of the nose or throat, and most of these types under rest and ice-cap go to an early resolution. They sometime stimulate the parenchyma of the gland sufficiently to produce a hyper-secretion, and this is followed by the toxic symptoms we so commonly see in hyperthyroidism. Sometimes the inflammatory process, whether it be tubercular or non-tubercular, so completely destroys all of the secreting structure of the gland that a myxedema results. I have never seen this complication, but in one of my cases there was such a complete involvement of both lobes of the gland that we thought the growth was malignant because of its stony hardness. At operation apparently the entire structure of both lobes consisted of calcareous deposits which gave the classical feeling of bone in the throat. This we interpreted as being the terminal stage of tubercular thyroiditis.

The other case of thyroiditis, which was operated upon by us, was also hard but had only scattered areas of calcareous deposits in the lobes. While surgery is indicated in the tubercular and suppurative types of thyroiditis, the mild or simple types often resolve without operation. But the most important thing to be remembered in connection with all early inflammations of the thyroid gland is the relationship of the tonsils, teeth and sinuses, for in these locations principally are found the focus that is causing the condition.

MALIGNANCY OF THE THYROID.

Malignancy of the thyroid gland is not common, and I find seven cases in my series of thyroid operations. Sarcoma and carcinoma are the commonest types of malignancy found, but malignant adenoma and malignant papilloma have been frequently reported. When the malignancy in the gland invades the capsule, the diagnosis can readily be made, but otherwise the diagnosis of malignancy of the thyroid cannot be made until the tissue is examined in the laboratory. Wide surgical removal followed by extensive radium or X-ray treatment is the only hope to offer

these patients, and even at the best the prognosis is not good. Herbst, in the study of a series of 207 cases of malignancy of the thyroid, reported no cures in the sarcoma cases, 5 per cent of cures in the carcinoma cases, 20 per cent of five year cures in the malignant adenoma cases, and 33 per cent five year cures in the malignant papilloma cases. In all of our cases we have used radium except in the first three, and all of them have died within eighteen months from the time of first coming under observation. In the last three and one-half years I had fifty-one cases of thyroid disease to treat surgically: two of these were malignant and were not operated upon, forty-nine had thyroidectomies with the loss of one patient during the first twenty-four hours following operation from hyperthyroidism. In this locality it would seem the exophthalmic and toxic adenoma predominate, for in this small series we only saw five colloid goitres and four mixed colloid and adenomas which required operation, though showing no toxic symptoms. In the handling of the toxic thyroid, I know no study in my work that is more interesting and fascinating, and yet with every case I am more thoroughly convinced of the old dictum, "Experience is the best teacher." A competent evaluation of the patient's symptoms and general condition is worth as much to the thyroid surgeon as all of the pet methods of diagnosis.

In closing, I would like to make a brief comment on the question of basal metabolism readings. While I put a great deal of faith on this question of metabolic rate as a contributing point in diagnosis, at the same time we do not take this as an inflexible guide for operation, for so many conditions must be considered other than the metabolic rate of the individual patient. For instance, the metabolic rate does not tell us whether there is an impending or actual acidosis present. It does not tell whether the patient is worn out from loss of sleep or what is his degree of prostration. It does not give any information regarding the condition of the kidneys, nor does it help us much in estimating the amount of nervous instability. We get from it no guide as to the amount of degeneration of the liver. It does not help us in evaluating the strength of the myocardium and it tells us nothing of the psychic state. It does not

give us any insight into the question of blood pressure, which is often important, and it does not help us in determining whether the patient is suffering from great weakness and emaciation, or whether, as a result of the prolonged toxemia, the patient is unduly old from a visceral point of view. As a general rule, I like to see the basal metabolism rate about 35 or lower, but we have operated successfully in some cases in which the metabolism rate has been as high as 75. I believe every enlargement of the thyroid should have one or more basal metabolism readings made upon them, and I do not think the medical treatment of any thyroid condition should be condoned without the check of frequent metabolic readings on the case.

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POST-OPERATIVE CARE OF THYROID CASES AND SOME OF THE MORE COMMON COMPLICATIONS.*

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The modern surgical treatment of thyroid cases has justified its soundness by lowering both mortality and morbidity. The principles underlying this success naturally fall into three groups or stages.

1. Proper preparation and conservative selection of time and type of operative procedure.
2. Judgment and good technique on the part of the surgeon and anesthetist.
3. Personal constant and intelligent care of the post-operative difficulties.

The relative value of these subdivisions of treatment is debatable, but certain it is that no other surgical condition makes a more urgent demand for close co-operation as well as individual responsibility on the part of those to which these stages of the treatment are relegated.

Post-operative cases of toxic thyroids may at times show such lightning-like changes and so many trying complications that success in no small measure depends on having an experienced personnel constantly on guard. Both literally and figuratively, it is of inestimable value to have a trained finger on the pulse at all times.

The thyroid gland is normally in close re-

lation to the trachea, great vessels, and nerves of the neck, and when greatly enlarged may rest on the pleural dome or even encroach on the oesophagus. The difficulties and complications that follow its removal are those of any surgical procedure, edema, hemorrhage, or sepsis—differentiated, however, in their manifestations and dangers by the anatomical location of the gland and the consequent structures involved. The key-note of treatment, according to Crile, is anticipation, since to be of value the treatment must be timed ahead. Dilatory tactics are not for this type of case. I am sure the excellent results obtained by men who do a great number of thyroids is no doubt in a large measure due to intuition, if you please, to so designate that vague extra sense that develops with experience. Of special importance, however, is a thorough knowledge and understanding of the preoperative characteristics of each individual case that we may be better able to anticipate just what that individual is apt to do. Of no less importance is an understanding of the operative procedure, difficulty in controlling bleeding, size of the gland removed and the amount of cavity consequently left, the smoothness of the anesthesia and condition in which the patient left the table.

Proper post-operative care begins on the table with the application of a snug, smooth dressing held in place with adhesive and reinforced in our cases with a small roll of gauze, 15 by 15 mesh to the inch, and of sufficient width to make a wide collar applied to conform to the neck by a series of spiral reverse folds. No detail is too small to demand its share of attention; therefore, you will pardon mention of such obvious things as care in removing patient from table and guarding against exposure. All thyroid cases show some degree of hyperhidrosis and a change of the wet clothes should be one of the first attentions rendered when your patient is returned to the darkened room and left in the care of a cheerful, efficient and tactful nurse.

The patient is propped on pillows just as soon as practical and kept in a semi-recumbent position, for in this position breathing is easier and wound drainage is facilitated. Most patients fall into a restful sleep, which continues from three to six hours. This is contrary to the behavior of those distressing

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cases that do badly from the start on account of damage to the large internal organs more extensive than could be determined before operation. These cases do not rest easily and often die in this stage, the first six hour period.

Ice-bags are applied to the head and precordia if there is much toxemia. Tap water is given by rectum soon after the patient is returned to bed, 1,000 c.c. *stat.*, and 500 c.c. every four hours. All postoperative cases need fluids, and the thyroid case, instead of being an exception, should be an exaggeration of the rule. If more fluids are needed, a bilateral hypodermoclysis, according to Bartlett, is given, 1,000 c.c. each of normal saline containing sufficient novocain to make a 1/32 per cent solution, the purpose of the novocain being to lessen the discomfort and thus allow large quantities to be given. In addition, water by mouth is given as soon as possible and as freely as it can be handled by the case in hand. By maintaining the body fluids, we hasten elimination of waste products and the internal oxidation processes, and reduce to a minimum the intracellular acidosis which Crile has advanced as largely responsible for nausea in these cases. Vomiting may occur at frequent intervals for the first twenty-four hours, and rarely may persist for the first two days, but a return to normal equilibrium of body fluids will usually control all cases.

Next in importance to fluids, we find a restful and comfortable condition of the patient to be much desired. There is some dissension of opinion in regard to the value of morphia. some men minimizing its use on the claim that it ties up secretions, and others being of the opinion that it prolongs nausea, but we have found, like Crile, that to alleviate pain and secure absolute quiet "morphia is the *sine qua non*." The idea is to induce mental quietude on the part of the patient with tranquil submission or, to quote Crile once more, to maintain a state of negativity. Sufficient morphia should be given to keep the patient quiet and to prevent any acceleration of the pulse from muscular activity or emotional squalls. In keeping with this effort at quietude, we feel that all visitors should be excluded for some days, though at times the perturbed and wildly active mind of a toxic case, especially in

the case of young girls, can be calmed and soothed by the presence of a sensible mother or close friend.

The dressing is not disturbed except for some unusual occurrence until the day after the operation; then it is done gently and with as few frills as possible. At the end of forty-eight hours the small silk skin sutures are removed, the drain lifted or removed, and the patient perhaps propped up a little higher. All drainage is removed on the third or fourth postoperative day as a rule. An enema is given on the second or third day, and two drachms of licorice powder on the night of the third or fourth day unless contraindicated, as in grave toxic cases. Cereals and starchy foods, carbohydrates and easily digested soft foods are given early, since we must remember that metabolism is accelerated in these cases.

Our patients are up on a back-rest in bed fairly early, but we make no effort to hurry convalescence by getting them out of bed as soon as they are able, and the more toxic the case the longer the rest in bed. It is impossible to maintain the passiveness of mind desirable if the patient is soon to become vitally interested in the daily happenings of a general hospital.

Hemorrhage after thyroid operations generally may be attributed to bleeding from the superior pole, the longitudinal veins just under the skin, or from the wound margins. Hemorrhage from the superior thyroid artery is a serious condition and requires immediate attention; it usually occurs in the first thirty-six hours. A large hematoma forms under the ribbon muscles and symptoms of tracheal pressure and respiratory obstruction may rapidly appear. The wound must be opened widely, the bleeding point isolated and tied with a ligature stitch. Hemorrhage may occur from this same source after infection and sloughing of the artery, and in such a case it may be necessary to prolong your dissection to clean tissue for a safe ligature. Packing and pressure or conservative measures are dangerous in this type of bleeding.

Hemorrhage from the longitudinal veins is far less serious. It is fairly safe in the absence of a large hematoma and freedom from the tracheal pressure to treat expectantly with ice-bags and a snug dressing.

However, a bleeding point properly tied gives the surgeon a more comfortable night. Bleeding from the skin edges is easily controlled by a wound clip or a properly placed stitch. Packing for hemorrhage in thyroids should be restricted to cases whose condition is such that more exact control is not possible. Transfusions are a great help at times and should be used promptly when indicated.

At any time after the third day on after operation collection of serum may appear in the wound, a complication of rather common occurrence due to the wide dissection necessary. This serum varies in amount from small blebs in the line of suture that can be eradicated by a small puncture with the point of the dressing scissors to a large serous exudate that should be opened and drained with a small piece of rubber tissue.

Frank infections in our experience are fortunately rare, but where you are accustomed to doing thyroids under local anesthesia with gas analgesia they will at times occur from a temporarily excited patient upsetting your sterile field by moving the head or even clutching at the neck with improperly fastened hands. In twenty-four to thirty-six hours after operation the neck may be thickened and edematous from the jaw to the wound or to the clavicle. Swallowing is difficult, breathing interfered with, and talking becomes an effort although the patient be in good voice. At times the edema will subside in a few days without special treatment and with no further trouble. It may go on to be followed by local heat, pain, and redness with a rise in temperature and leucocytes. In such cases the wound should be opened widely and drained. Hot moist dressings and the wound kept open with gauze are advisable. We are now using a gentian violet 1-5,000 or 1-10,000 in treating infected wounds, and one case of thyroid infection did well enough for us to look with favor on this agent as an adjunct in treating such cases.

Particular care should be exercised that an infection does not extend to the cellular tissue of the superior mediastinum and produce mediastinitis, a grave and usually fatal complication. Mediastinitis is generally preceded by a brawny induration of the neck, and there is difficulty in swallowing and breathing which is not relieved by free open-

ing of the wound. The infection is often low grade; there is a persistent slight elevation of temperature and rapid pulse, and the patient gradually fades out in spite of all treatment. Mercurochrome intravenously is certainly worthy of a trial in this type of infection.

The presence of mucus from tracheitis is at times a trying complication. It can be much minimized by proper regard for the pre-tracheal fascia during the operative procedure. When it does occur the patient can often be made more comfortable by loosening the drain, changing the position, rearranging a dressing too snugly applied, or having her inhale steam, either plain or impregnated with the fumes from compound tincture of benzoin. The electric suction can be used to relieve the patient of the tough stringy mucus which accumulates in the throat.

Tracheitis is frequently accompanied by stridor which is both inspiratory and expiratory and is accompanied or followed by expectoration of mucus. This may be due to a simple tracheitis and, if so, clears up with the tracheitis. If due to injury to the recurrent laryngeal nerve, it is treated expectantly except for the administration of sedatives to produce relaxation and to quiet the patient. If the stridor persists and there is enough obstruction to cause the patient great fatigue, cyanosis may ensue and a tracheotomy is indicated. This procedure is apt to be too long delayed for, when needed, it should be done when cyanosis begins and is often of no avail in the late stages. With the nitrous oxide oxygen apparatus, oxygen under pressure may be used to dilate a collapsed trachea at will and this once dreaded complication is now little feared.

The heart is affected in practically all cases of hyperthyroidism. Deavor states that all expectation centers upon the heart in the treatment of goitre, but Crile is of the opinion that heart complications are rarely serious and usually very amenable to treatment. When there is any postoperative sign of need for cardiac stimulation, the preoperative course of digitalis therapy is repeated. If it cannot be taken by mouth, we use the aqueous solution hypodermically. In many cases, however, we have found that small doses of morphia are of as much value to the fail-

ing myocardium as digitalis. During the first few hours after a thyroidectomy there may develop a bradycardia due to vagus stimulation. It is of interest only that it may be properly accounted for and readily clears up in a few hours without special treatment.

Injury to one of the recurrent laryngeal nerves at operation is a complication to be avoided by careful and proper technique. Serious injury to both nerves should not occur. Paralysis of both nerves is a distressing condition and treatment is both difficult and uncertain.

The accentuation of all the toxic symptoms of hyperthyroidism is a complication that formerly was well-known in all thyroid clinics. Proper preparation and judicious surgical procedure, especially in regard to the open treatment of the wound in toxic cases, has materially reduced the number of thyroid storms. Occasionally a mistake in judgment of the amount of operative procedure a patient can stand or a case demanding some interference in spite of toxicity will lead us to face this complication. These storms are of two types: The first is characterized by an exaggeration of some or all the toxic symptoms; the nervous symptoms are severe, there are tremors, twitchings and muscular activity, the patient cannot rest. The facies are anxious, the features show strain, the eyes are staring, the skin hot and moist with perspiration, and the temperature elevated from one to four or five degrees. The treatment of this type can be summarized as morphia, fluids and ice. Morphia is given in sufficient dosage to keep the patient quiet. Fluids are given freely by mouth, rectum, subcutaneously and at times intravenously. Up to this time ice has been used about the neck and precordia, but now the patient must be surrounded with it. Ice-bags are applied to both sides of the lower extremities, to the front and side of abdomen, to the back of neck, the forehead and the vertex; only the thorax is omitted. Blood transfusion has been advocated since it not only supplies new healthy blood but dilutes the existing toxemia; we have never found this to be necessary provided the fluid intake is sufficient.

The second type of thyroid storm is marked by depression and resembles surgical shock. The pulse rate is high and the temperature is

elevated, but the patient shows no exaggeration of nervous symptoms. Often she is aroused with difficulty, lies quietly with eyes closed, her face is pallid, the skin is hot but does not leak perspiration. The treatment of this type requires no morphia but does call for increased fluids as outlined in the other type.

Iodine in our hands has not given the uniformly good results that have been reported in recent literature. Perhaps enthusiasm has led us to use it injudiciously or ill-advisedly, and more experience in its use will be productive of better results. Certainly Plummer's investigations are encouraging in regard to the exophthalmic type.

Myxedema and tetany when they do occur require thyroxin and calcium lactate respectively; response to such treatment is satisfactory in both cases.

We think it wise to impress thyroid cases of toxic and exophthalmic type with the fact that they are not to expect entire relief from local or general symptoms, that the real purpose of the operation is to prolong life and prevent further damage to the heart and nervous system. True exophthalmic goitre is probably never completely cured since irreparable damage to vital structures has already occurred. Tact must be used in explaining such things to your patient, for great harm can be done to the over-taxed nervous system of such cases by too much and too frank pessimism.

The condition of patients weeks and months after operation is of interest, and toxic cases should be followed for at least a year as a routine. We request the patient or the physician in charge to report her condition at the end of the first and third months, and whenever it is possible we strive to have basal metabolism rates charted at the end of six months and the year. Thyroidectomized patients should be returned to the care of an internist or the family physician, for, though the source of the toxic secretion has been removed with the thyroid, a regimen of rest, psychotherapy, directed diet, removal of all causes of mental or physical disturbances, and symptomatic drugs are required to restore the patient to the status of a useful individual.

That the patient may co-operate with the attending physician along these lines, it is

helpful for them to leave the hospital with definite instructions as to their future conduct and mode of living. Some such dialogue as the one employed by Ochsner answers this purpose, and I will close with such of these as we deem important:

1. Avoid all excitement or irritation, like attending receptions, shopping, church work and politics. If anything happens to annoy you, put it off for a week.

2. You should get an abundance of rest by going to bed early and taking a nap after luncheon.

3. You should have an abundance of fresh air at night; consequently, you should sleep with wide open windows, or on a sleeping porch.

4. You should take nothing that irritates the nervous system, like tea, coffee or alcohol. Of course, you should not use tobacco in any way.

5. You should eat very little meat. If you are very fond of meat, take a little beef, mutton, or breast of chicken, or fresh fish two or three times a week.

6. You should drink a great deal of milk or eat things that are prepared with milk, such as milk soup, milk toast, etc.; also cream and buttermilk are especially good for you.

7. You should eat an abundance of cooked fruits and cooked vegetables, or very ripe raw fruits, or drink fruit juices prepared out of ripe fruit.

8. You should eat eggs, bread, butter, toast, rice and cereals.

9. You should drink an abundance of good water, or, if this is not available, you should boil your drinking water for twenty minutes or drink distilled water.

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805 Medical Arts Building.

THE DIAGNOSIS IN TOXIC THYROID DISEASE.*

By ROBERT CAMDEN WHITEHEAD, M. D., Norfolk, Va.

In investigating a case of suspected thyroid toxemia, the question is not primarily, has the patient exophthalmic goitre or thyroid adenoma with hyperthyroidism, but is the patient suffering from a toxemia referable to the thyroid gland. In cases of long standing, with manifest thyroid enlargement, with exaggerated symptoms of thyroid intoxication, the answer is readily given. But these advanced cases constitute bad surgical risks and offer little hope of successful treatment by other measures, because of the degenerative processes that have developed in other organs. A larger percentage of correct diagnoses in the early stages would materially aid in further reducing the low mortality rate already obtained by the splendid surgical technique that has been developed. This can be done only by constantly carrying in mind the possibility of the presence of thyroid disease and the careful and complete investigation of all suspicious cases that come under our care.

The classification of diseases of the thyroid gland as laid down by Plummer is now generally accepted and has removed a world of so-called confusing monumental nomenclature. He classifies diseases of the thyroid gland as follows:

1. Diffuse colloid goitre.
2. Adenomatous goitre without hyperthyroidism.
3. Adenomatous goitre with hyperthyroidism.
4. Exophthalmic goitre.
5. Myxedema.
6. Cretinism.
7. Childhood myxedema.
8. Thyroiditis.
9. Malignant disease of the thyroid gland.

Of these, the exophthalmic goitre and the adenomatous goitre with hyperthyroidism are the principal toxic diseases. Thyroiditis frequently produces toxemia with all its symptoms, including increased basal metabolic rate. In such a case the picture so closely resembles exophthalmic goitre that the latter is the diagnosis made and the true condition is discovered in the pathological laboratory.

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The same is true of malignancy of the thyroid, which is frequently accompanied by increased glandular activity. Boothby states that it cannot, under these conditions, be positively differentiated from chronic diffuse non-febrile thyroiditis. The diagnosis is established by surgical exploration and pathological examination.

The general symptom picture of adenoma with hyperthyroidism and that of exophthalmic goitre closely resemble each other, because in both there is an increased thyroid activity. This picture Boothby states is the resulting secondary manifestation of an increased rate of basal metabolism. This increased rate, in the case of adenoma, is due to an abnormally high concentration of thyroid in the circulation.

In the exophthalmic goitre there is increased concentration plus some abnormality of the thyroid secretion. Eighty per cent of all cases occur in females. In a series of 1,402 cases of both types reported by Boothby, the average age of 366 cases of toxic adenoma was forty-eight years, the youngest being under nineteen and the oldest seventy-nine years. In the 1,036 cases of exophthalmic goitre the average age was thirty-seven years, the youngest being nine years and the oldest sixty-nine years. In 714 cases under forty years of age the goitre of the exophthalmic type greatly predominated. Between the ages of thirty and forty the percentage was 13 per cent adenoma and 87 per cent exophthalmic. This ratio was gradually reduced as ages increased until above sixty years the ratio became 77 per cent adenoma to 23 per cent exophthalmic. There is a striking difference in the duration of the goitre in the two types. The average duration of the goitre in the adenomatous cases, before coming to examination, was eighteen years. In the exophthalmic goitre it was 4.2 years.

The onset of the disease is usually gradual and the exact date of the beginning of symptoms uncertain. Two or three years previous to coming for examination the patient notices that she is more nervous than formerly and more easily excited. In the early stages of the disease there is a sense of well-being and enthusiasm for work, but she is unable to maintain either mental or physical effort for any length of time. There is the history of

excellent appetite, but the patient notices that in spite of taking abundantly of food she steadily loses weight and strength. There is a sense of giving away of the knees. The skin is moist and warm with a tendency to sweating, especially of the palms and over the epigastrium. The pulse is rapid and the heart's action heavier; especially is this noticed on going up stairs; at a later stage there is reported palpitation while at rest. The history is that just before coming for examination there was a marked exaggeration of symptoms possibly accompanied by enlargement of the goitre. There is a moderate tremor and dyspnea on exertion.

The above symptom picture is that of hyperthyroidism as found in cases of adenomatous goitre. If the case is one of exophthalmic goitre the subjective symptom will include, in addition to the above, attacks of nausea, vomiting and diarrhea without apparent cause, possibly jaundice, irregular or suppressed menstruation, nervous and possibly mental symptoms of varying degree. Insomnia is frequently complained of, as is also cramping of the hands and feet. There is increased irritability and altered disposition. In advanced cases there may be a history of various psychoses, phobias and obsessions and the maniac depressive state. The acute mania, which frequently is a terminal symptom, is attributed to a sudden and intense thyrotoxicosis.

EXAMINATION.

Physical examination will show a poorly nourished patient, weak but very alert and bright. The skin is warm and moist. The palms are usually damp and cold. The hair is poorly nourished and there may be baldness. Pigmentation is not uncommon, usually of the face, neck, nipples, and the flexures of the arms and thighs. This in some cases may be very deep, resembling Addison's disease.

The eye symptoms are of the greatest importance. In exophthalmic goitre there is more or less prominence of the eyes, and in advanced cases they may be pushed almost out of the orbit; under such circumstances there is apt to develop ulceration of the cornea due to drying, as the lids never entirely cover the eye-ball. The degree of exophthalmos may be anywhere between a slight

prominence and the grave condition. It is to be remembered, in border line cases, that some people have rather prominent eyes who have nothing wrong with their thyroid gland, and that a diagnosis is not to be made from this symptom alone.

There are many eye signs all based upon this condition: Graefe's sign—the lids fail to follow in a normal manner, when the eye ball is rotated downward; Dalrymple's sign—the palpebral fissure is wider open than normal; Stellwag's sign—infrequent, irregular and incomplete winking; Mobius' sign—insufficient power of convergence for near objects; Joffroy's sign—when the head is bowed and the patient asked to look up without changing the position of the head, the forehead is not wrinkled, as occurs in health. These signs are all due to the eye condition and are commonly associated together.

The teeth are usually bad and undergo rapid decay. The thyroid gland is usually only moderately increased in size.

In adenomatous goitre there is an unsymmetrical enlargement consisting either of a single small adenoma or a large mass of several small tumors grouped together. Boothby states that the small single adenoma is very apt to produce hyperthyroidism, while the larger cystic colloid type of adenoma does not.

The enlargement in exophthalmic goitre is smooth and symmetrical, and generally involves both lobes. It is usually greater in the right lobe, due to hypertrophy and hyperplasia of the entire gland.

In the latter type of goitre a bruit is heard over the thyroid vessels. In adenoma this is generally absent, occurring in only 4 per cent of cases according to the reports of the Mayo Clinic. This murmur is systolic in time, or continuous, and may be accompanied by expansile pulsation and thrill.

The circulatory derangements are among the most constant manifestations. The pulse rate is usually rapid and was formerly supposed to be always increased in frequency, but since being checked by basal metabolic reading, it has been discovered that there is a small percentage of cases in which the pulse rate is not increased, though in the majority the basal metabolism rate and pulse are increased in direct proportion. Sturges and

Thompson of the Peter Bent Brigham Hospital state that the resting pulse rate and the basal metabolic rate in hyperthyroidism show a fairly constant relationship in a high percentage of cases. In a study of 496 cases, determination of basal metabolism on 154 cases of hyperthyroidism showed a pulse rate of 90 or more associated with a basal metabolism rate of plus 15 per cent or more in 84 per cent. In seventy cases in which the basal metabolic rate fell to normal, there was a corresponding decline of the pulse to 90 or lower in only 78 per cent. Fifty-two cases on which a number of basal metabolism readings were taken showed a correspondence of pulse and basal metabolic rate in 85 per cent. In 106 cases reported by the same authors suffering from various diseases in which basal metabolic rate was normal, a pulse frequency exceeding 90 occurred only five times. This is believed by the authors to be a point in differentiation in nervous patients presenting symptoms suggestive of hyperthyroidism, since the above studies show that a resting pulse below 90 is seldom and below 80 rarely associated with an increased basal metabolic rate.

The cardiac action is increased in strength as well as rate, the apex beat is more visible and may be found to the left mid-clavicular line. The area of cardiac dullness may be increased 1 or 2 c.m. to the right. There is a precordial heave, with possible movement of the thoracic wall, all of which shows that dilatation has occurred. As a rule the rhythm is regular, but in grave cases various arrhythmias are observed and murmurs are heard at apex and base. The heart sounds are loud. There may be vasomotor disturbances, as pruritus, urticaria and dermatographia. These symptoms are so much in evidence, so dominate the picture, that a diagnosis of grave cardiac disease is often made, overlooking entirely the underlying causation, the thyrotoxicosis.

BLOOD PRESSURE.

Phillips of the Crile Clinics states that the blood pressure in toxic goitre resembles that seen in aortic regurgitation, viz., an increased systolic and a low diastolic pressure, the pulse pressure being increased above the normal limits. Plummer found that 27 per cent of patients over forty years of age suffering with

toxic adenoma had a systolic pressure of 160 or more. Boothby claims that hypertension is very rare in exophthalmic goitre and that if hypertension exists, as is evidenced by a high diastolic pressure, the evidence is in favor of adenomatous type. Our limited experience has been somewhat different. With the exception of one case, complicated by pregnancy and nephritis, in which the systolic pressure was over 200, our cases have shown both a low systolic and a low diastolic pressure, usually around 110—60. The tremor of toxic goitre is a variable one. It may be so forceful as to be annoying, and involve not only the hands but the head, or so slight as to be discovered with difficulty. It is involuntary and about eight or nine to the second.

LABORATORY INVESTIGATION.

The laboratory examinations of the blood and urine show practically no abnormalities. There may be a transient glycosuria, which Boothby states occurs in only 2 per cent of cases. Albuminuria, if present, is due to causes other than the thyrotoxicosis. There are several tests for aiding in the diagnosis of toxic disease of the thyroid gland, the best known being the basal metabolic rate and the Goetsch test. There is also the thyroid feeding test. Packages for this purpose may be purchased, consisting of twelve capsules, divided into three sets of four capsules each of one-half or two grains for a three day course. There is a chart for reading the pulse five times daily. A positive reaction consists in the developing of symptoms of hyperthyroidism. When these symptoms become manifested, the test is to be discontinued at once. This test should not be used in case of outspoken hyperthyroidism. The Goetsch test, the injection of five mil. of 1 to 1,000 adrenalin in solution results in an increase of pulse and blood pressure of ten points; increased respiration, sensations of heat and cold, nervousness and emotionalism. The intensity of the reaction is in direct proportion to the degree of toxicity and lasts for one and one-half hours. Dr. Crile states that it is positive in 85 per cent of cases. That it is distressing to the patient is positive, and is with difficulty administered a second time. If negative, there is little or no reaction.

Loewi's mydriasis adrenalin test consists in the instillation of one or two drops of stand-

ard adrenalin solution into the conjunctival sac, which causes the pupil to dilate in one-half hour, lasting for one and one-half hours. Sugar tolerance test is based on the low sugar tolerance of thyroid intoxicated cases. These case tests are not now widely used.

The most important of all laboratory procedures in cases of suspected hyperthyroidism is the estimate of the basal metabolic rate, as most of the tests and diagnostic signs of these diseases have been checked by and valued accordingly as they have coincided with the found rate of basal metabolism. This knowledge of the basal metabolic rate is not only of value in diagnosis, but also in prognosis and as a check on the efficiency of remedial agents used. When clinical calorimetry was first introduced and variation in the basal metabolic rate found in many different diseases, it was thought that this laboratory procedure would have a very broad field in general medical diagnosis, but as time passed and knowledge increased it was shown that in diseases other than those of the thyroid gland the findings were not sufficiently consistent to be of real value, so that at the present time the estimate of the basal metabolic rate is confined almost entirely to disease of the thyroid gland. To be of real value these readings should be as nearly perfectly correct as a perfect technique can make them, and all the necessary requirements must be carefully carried out. The sources of error may be divided into two groups—those due to error of the technician and instrument, and those due to faulty preparation of the patient. Errors of the first class are easily located and easily prevented by proper care and attention, as the procedure is quite a simple one. On the other hand, a perfect preparation of the patient, especially in cases of high toxicity, is a difficult proposition. The patient should be without food for twelve hours, free from muscular activity for the same length of time, and as free from mental activity and excitement during this period as she can be made.

It is the custom of some to take the rate in the post-absorptive period after one hour bodily rest and in some cases the patient comes to the doctor's office for this purpose. This I am certain is an insufficient time to eliminate the effect of muscular activity. The late Dr. Hough once told me that it was impossible to

accomplish the desired purpose in this length of time. McCleod requires fifteen hours' rest before the reading is taken, the patient sleeping in the calorimeter.

Dr. Boothby in a personal letter stated that in 5 per cent of all cases a period of four to five days' hospitalization would be required before correct reading was obtained.

The influence of mental excitement is difficult to estimate and still more difficult to eliminate. In order that this influence shall be removed, it is necessary that the patient be left alone and be as quiet as possible. This is best accomplished at night when the patient is asleep and in a hospital. We have found that preparation for the taking of the basal metabolic rate is best made by having the patient spend the night in the hospital in a private room. Under these circumstances, we have muscular rest for twelve hours, as nearly as possible freedom from mental activity and excitement, and assurance that the patient has had no food during this time. This latter is by no means assured when the patient spends the night at home; further, the break of the rest period and mental excitement of going to the doctor's office absolutely breaks the technique of preparation. Let me impress the importance of this. An erroneous high reading may lead to measures being instituted which may result in the reduction of a normal thyroid activity.

Dr. Boothby says that unfortunately the clinical value of the basal metabolic rate may become discredited in some localities through failure to carry out all technical and physiologic details necessary for an accurate reading. It is now the general opinion that there can be no hyperthyroidism without an increase in the rate of basal metabolism.

In the examination of 1,111 cases of toxic adenoma at the Mayo Clinic, the basal metabolic rate was found above normal in 100 per cent. In 2,969 cases of exophthalmic goitre the basal metabolic rate was above normal in 98 per cent, and the remaining 2 per cent came under observation during periods of remission.

The above figures show that an increase in basal metabolic rate is practically always present in the toxic thyroid disease; nevertheless, a diagnosis should not be made from this alone, though it is strong presumptive evidence,

until all other sources of possible increase have been eliminated, or other evidences of thyroid involvement brought to its support.

The X-ray is not without its value in these investigations, as the picture will show definite enlargement of the gland, and under the fluoroscope the mass rising and falling with swallowing is almost pathognomonic. It will also reveal the presence of sub-sternal goiter.

DIFFERENTIATION.

The differentiation of these two toxic thyroid diseases is not difficult. The absence of exophthalmos and the eye sign is almost characteristic of toxic adenoma. The blood pressure, if high, points to adenoma; if low, to exophthalmic goitre. The palpation of the gland reveals the presence of the tumor and the asymmetry of the enlargement on the one hand, and the smooth symmetrical hypertrophy on the other. The question of age and duration of the disease will also assist in distinguishing the two types. The small percentage of cases without visible thyroid enlargement and the circulatory symptoms will point toward serious cardiac disease. Here the basal metabolic rate is of value, though it must be borne in mind that cardiac decompensation gives an increase in the basal metabolic rate in 76 per cent of cases, as reported by Hamburger and Levi, Peabody, Wentworth and Barber. In the latter disease the increased rate is in direct proportion to the decompensation, and will not, therefore, be high unless the decompensation is far advanced. It must also be remembered that myocardial degeneration is one of the results of prolonged toxic thyroid disease. Such cases illustrate the necessity of careful and complete investigation.

The loss of weight and strength may suggest tuberculosis, and a transient glycosuria may be responsible for the diagnosis of diabetes. The proper investigation of the case should make elimination of these diseases fairly easy.

Increased tendency to fatigue and loss of strength, together with tremor, vasomotor disturbances and the nervous and emotional symptoms of thyrotoxicosis, bring into the field of differential diagnosis those ever-present bug-bears, psychoneurosis and neuro-circulatory asthenia. Here the rate of basal

metabolism is of the utmost value, for these cases have a normal basal metabolic rate. The gastric crisis of exophthalmic goitre may lead to a suspicion of acute abdominal trouble.

A neurotic patient with large colloid goitre may present symptoms closely resembling a thyroid intoxication. If these manifestations are due to a neurosis, the basal metabolism will be normal or below.

Finally, in the diagnosis of toxic thyroid disease, both direct and differential, no one symptom or sign, and no special laboratory procedure should be considered as pathognomonic. By careful grouping of all the findings and through investigation of all suspicious cases, early diagnosis will be achieved and proper treatment instituted before gross damage has been done to the vital structures.

805 Medical Arts Building.

MODERN VIEWS ON DISEASES OF THE THYROID GLAND, WITH SPECIAL REFERENCE TO HYPOTHYROIDISM AND HYPERTHYROIDISM.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

The diseases of the thyroid gland have always been peculiarly interesting because of the greatly varying forms they may assume. From a large benign adenoma weighing several pounds but causing no symptoms, except from mechanical weight and pressure, to the small toxic thyroid adenoma is a far cry. In the latter instance the growth produces marked constitutional symptoms which are well known. No benign tumor elsewhere in the body gives intrinsically constitutional symptoms. The hyperplasia of the thyroid gland constituting a diffuse hypertrophy that might be called a kind of work hypertrophy gives rise to symptoms similar to those of a toxic thyroid adenoma. This type of hyperthyroidism, termed variously exophthalmic goiter, Graves' disease, Flajani's disease, Parry's disease and Basedow's disease, has excited the interest of many of the outstanding figures in the medical profession. The opposite of this condition is hypothyroidism. During the early professional career of Osler one of the pieces of research work that he often admiringly referred to was the discovery of

cretinism and the various forms of myxedema which arise from the deficiency of thyroid secretion.

These two extremes, then, excessive thyroid secretion and deficient thyroid secretion, cover a multitude of varying symptoms, and while the typical cases are easy of recognition, the mild cases often escape notice. The large simple adenoma may predispose to either hyperthyroidism or to hypothyroidism. Sometimes the adenomas degenerate and absorption of their products gives symptoms. Occasionally, too, pressure from a simple adenoma may cause hypertrophy of other portions of the gland which will then produce an excessive amount of secretion; though the usual effect of such pressure is diminished secretion.

Malignant tumors of the thyroid may run a rather rapid course, but are difficult to detect in their incipiency. In a case of mine the patient was referred to me after the cancer had persisted in the left thyroid lobe for several years and had caused paralysis of the vocal cord on the left side by pressure on the left recurrent laryngeal nerve. In this instance the growth had infiltrated the sternomastoid muscle, and sections taken at an exploratory operation showed a very highly differentiated type of tumor with acini almost resembling normal thyroid tissue growing into the muscle. This, of course, indicated a mild cancer which would coincide with the history of several years' standing. The growth was so extensive that radical operation could not be done, but radium needles were inserted and deep X-ray treatment was given with much temporary benefit. On the right side, however, there was apparently still sufficient thyroid tissue to prevent symptoms of hypothyroidism.

The various stages of hyperthyroidism have been fully considered by many observers, and the study of this condition has been greatly helped by tests for basal metabolism. The mild types of hyperthyroidism seem to have been recognized, though comparatively little attention has been paid to mild hypothyroidism. One of the best pieces of work on thyroid diseases for several years has been done by Dr. W. H. Higgins, head of the Medical Department of St. Elizabeth's Hospital, on the mild type of hypothyroidism. In a paper read before the Section on Medicine at the meeting of the

*Read before the Southwestern Virginia Medical Society at Mountain Lake, Va., August 27, 1925.

*From the Surgical Department of St. Elizabeth's Hospital, Richmond, Va.

American Medical Association in May, 1925, Dr. Higgins reported a very interesting study of this condition. Some of these patients came originally for surgical treatment and after being examined both from a general surgical standpoint by me and urologically by Dr. Dodson, we could find nothing to account for the vague symptoms. Careful medical observation by Dr. Higgins together with accurate basal metabolism tests often demonstrated hypothyroidism, and proper treatment frequently afforded relief. The symptoms were not those usually considered typical of a hypothyroid condition. Several of the patients, for instance, were rather thin. None of them had a slow pulse. In all of them the basal metabolism varied from minus 11 to minus 25.

Dr. Higgins finds that a different syndrome presents itself in the milder forms of hypothyroid conditions from what would be expected from our knowledge of the well developed cases. Dryness of the skin and the hair are common to both types, but in the series of twenty-three cases it was present in a little more than one-half. Higgins noted a premature wrinkling of the forehead, which may have some diagnostic bearing. Nervousness of a local nature was found to be one of the most frequent complaints. In some patients there was a tingling of the extremities, or constriction about the head. In others there was depression, emotionalism, or other evidence of a neurosis. These symptoms are usually considered indicative of a hyperactive gland, and are commonly not expected in hypothyroid states. In fourteen of the twenty-three histories there were vague pains, which constituted the chief symptoms in the illness of the patients. The pain was often referred to the abdomen and seemed to be a source of considerable annoyance. It is such patients that without careful examination may be submitted to an operation which cannot do any good if there is no abdominal pathology present, and which undoubtedly may do much harm. The pain seems to bear no particular reference to any organ or nerve distribution, and this is a characteristic feature. Constipation, headache and localized edema were observed by Higgins in many of these cases. The edema occurred in seven patients. In six it represented a slight pitting of the ankles,

a certain tightness of the fingers, and a moderate fullness of the eyelids. Obesity is relatively uncommon in these patients, and underweight is not infrequently found. Incipient hypothyroidism, according to Higgins, is commonly found in women around the menopause, and apparently bears some relation to the activity of the ovaries.

Hyperthyroidism, especially mild hyperthyroidism, has been more fully studied by various observers than hypothyroidism. The symptoms of marked exophthalmic goiter with flushing of the skin, a rapid pulse, the venous thrill over the thyroid gland, prominent eyes, and congestion of the conjunctivae are well known. The milder types, however, are sometimes puzzling, and it is in these cases that a basal metabolism gives valuable information.

In the VIRGINIA MEDICAL MONTHLY, March, 1925, appeared a paper of mine on operations on the thyroid gland which was read before the Medical Society of Virginia the preceding October. In it were reviewed the operations on the thyroid gland at St. Elizabeth's Hospital for the year ending October 10, 1924. At that time we followed rather closely the Crile technic in ligating the superior thyroid arteries as a preliminary step in operations for hyperthyroidism. Often both superior thyroids were tied at intervals of a week or more, and a partial thyroidectomy was done a few months later.

In the paper mentioned I reported thirty-five operations performed upon twenty-one thyroid patients. Ten of the cases were simple adenomas or colloid goiter, and eleven were hyperthyroid cases, twenty-four operations being done on eleven hyperthyroid patients. There were no deaths. We have not secured ultimate results in them all, but apparently all of these patients have been greatly benefited and many are practically well. One, for instance, gained fifty-four pounds in about four months from the time of the thyroidectomy. Her pulse came down from 120 when she entered the hospital to 72 a few months later.

Since reading this paper we have had eleven new thyroid cases and one recurrence. Seven were cases of hyperthyroidism, which includes toxic adenomas, and five were simple colloid goiters or simple adenomas. There were seventeen operations on twelve patients. In only

one of these cases were the thyroid arteries ligated. This was early in February, 1925. Since that time we have done no ligations. All of these patients had a satisfactory recovery, making a total since October 8, 1923, of fifty-two operations on thirty-two consecutive patients without a death.

The principles of gentleness and of careful technic, as elaborated by Crile, are most valuable and are strictly followed. It is important, however, to remember that the technic of any clinic, no matter how successful, should not be blindly adopted. It seems to me that a combination of the administration of Lugol's solution with Crile's gentleness and care in the thyroidectomy makes an ideal procedure in the therapy of hyperthyroidism. The patient is operated upon under ethylene anesthesia, usually in the operating room, though when the operation is in several stages some of the stages are done in the patient's bed.

Treatment for a typical case of hyperthyroidism would be, first of all, admission to the hospital and a careful study by the medical department, which, of course, includes a basal metabolism test. The general condition of the patient and the rate of the basal metabolism influence us in the decision about operation. If the case is comparatively mild and yet operation seems advisable, it is done in four or five days. If severe, the patient is kept in bed for several weeks. In the meantime, Lugol's solution is given, about twenty to thirty drops a day. In some cases of hyperthyroidism apparently from toxic adenoma Lugol's solution seems to benefit; in others it is not helpful. We give it in all cases and discontinue it in those it does not help after two or three days. The patient remains as quiet as possible in bed and takes an abundance of water and milk. An ice-cap is placed over the neck, one over the heart, and sometimes on the head. The usual preliminary hypodermic and ether jacket are used several days before the operation. The operation is done as early in the morning as possible. The patient is brought quietly to the operating room with the face covered and, preferably, with light cotton stuffed in the ears. This preliminary preparation of covering the face and stuffing the ears with cotton is done for several days before operation. Ethylene is given on the stretcher, and the pa-

tient, when partly under the anesthetic, is removed to the operating table.

The area of operation is injected rather freely with a solution of one-half of one per cent novocain made up in Ringer's solution from freshly distilled water. The technic of Crile is followed, making the incision slightly curved downward from the sternomastoid muscle on one side to a corresponding point on the other. The lower portion of the incision comes to about one and one-half inches above the sternum. The flaps are dissected up and down, and more novocain is injected. The ribbon muscles are split longitudinally from the larynx to the sternum. The thyroid isthmus is divided in the midline almost to the trachea. On the right side the isthmus is dissected from the trachea for about three-fourths of an inch, and the dissection is carried along the upper border of the thyroid, where the attachments to the region of the larynx are clamped and divided. After mobilizing the right lobe in this manner, particularly after freeing the upper attachments, it comes easily into the wound. The vessels are clamped along the outer margin of the thyroid and the thyroid lobe, being thus blocked off vascularly, is dissected from its outer margin to the trachea. With the finger on the trachea and the under portion of the isthmus freed from the trachea, the general direction of the dissection can be readily governed. In this way a thin layer of thyroid tissue is left covering the recurrent laryngeal nerve and the tissues around it. The clamped vessels are quickly controlled by whipping over two or three bleeding points at a time with plain catgut in a needle.

If the patient is not doing well during the operation, the wound is packed with gauze wrung out of a 1-10,000 solution of acriflavine, and the patient is returned to bed after removing only one lobe. About two days later the other thyroid lobe is removed and the wound closed, or, if the patient's condition is not satisfactory after the removal of the second lobe, acriflavine packing is again inserted and the wound closed later at a third operation. If the packing be left too long, suppuration is prone to occur. When the packing is removed it should be done with great care. Peroxide of hydrogen is freely applied to the packing. We sometimes leave

small tubes in so the peroxide of hydrogen can be introduced in this way.

The absence of unnecessary trauma and stopping the operation at any point at which the patient seems to be decidedly growing worse, are valuable points in this technic. Of course, it requires good teamwork, and particularly skillful anesthesia, but with these conditions some cases of hyperthyroidism that are apparently hopeless by other procedures can often be saved.

The postoperative treatment consists in quiet, an abundance of water, and ice-caps. A certain amount of Lugol's solution may also be given if the stomach can retain it, though, if the patient has taken Lugol's solution before the operation, it will not be necessary to push it so strenuously afterwards. Recently, we have given glucose intravenously. This seems to be established on principles that would be helpful in the postoperative treatment of any advanced case of hyperthyroidism. Possibly I can best illustrate by reporting a case:

The patient, V. B., a white girl, twelve years of age, and the youngest case of marked hyperthyroidism that I have seen, was admitted to the hospital with typical exophthalmic goiter. Her symptoms began about a year before admission, and for a while under careful treatment by her family physician they improved. About two months before admission she had some gastro-intestinal upset, and the hyperthyroid symptoms became much more pronounced. On admission to the hospital her pulse could not be accurately counted, it was around 170. It is recorded in the chart as "?". She was placed on ice-caps, Lugol's solution and quiet, and her pulse ranged from 130 to 148 for the following ten days. After that for two days it came down to 118, and when she was asleep it would occasionally drop to 100. She was operated upon the fifteenth day after admission to the hospital. The right thyroid lobe was removed, employing the technic which has been described. The pulse was rather rapid, and after removing the right lobe the wound was packed with acriflavine gauze. The following day her temperature reached 103. Her pulse was very rapid and running in character. A vein was opened and an intravenous cannula inserted, and 10 per cent glucose in Ringer's solution made with freshly distilled

water was introduced into the vein. She had about 2,500 c.c. of this in twenty-four hours. Within fifteen minutes after administering this solution her pulse became more regular and was about 145. Two days after the first operation most of the left lobe was removed. The intravenous solution was then continued for two days, and three days after the second operation her pulse was 124 and her temperature 99. She made a smooth convalescence.

The intravenous glucose seems a valuable addition to the postoperative therapy. These patients burn up a quantity of carbohydrates, and if they cannot secure carbohydrates they use tissue cells. By supplying abundant glucose the necessary fuel is furnished and the tissues are protected. Water itself, of course, is important, but water with glucose, and especially in Ringer's solution introduced continuously into the vein with little or no pain, is a most helpful after-treatment.

These things have changed my whole attitude toward surgery of hyperthyroidism within the last few years. Formerly, I dreaded to see a case. The old method of watchful waiting till a so-called cycle was over seems indefinite and vague, and frequently after doing a beautiful operation the patient died from acute hyperthyroidism. When every vessel is individually clamped and tied and the wound accurately sutured, the operation appeals too much to the anatomical and mechanical sense and biologic principles may be neglected. The methods of Crile with gentleness, quickness, a minimum of trauma and the ability to stop the operation on a hyperthyroid patient at any point at which the patient's resistance seems too much taxed, have converted what was formerly an annoying problem into one of the most satisfactory chapters of surgery.

617 West Grace Street.

DISEASES OF TEETH OF SCHOOL CHILDREN. THREE YEARS' OBSERVATION. THE REMEDY.*

By ROYAL T. SOMERS, D. D. S., Norfolk, Va.
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I esteem it a great pleasure and privilege to have been invited to address you this evening, and especially so since my subject is one in

*Read before the Norfolk County Medical Society, May 25, 1925.

which all of us are so vitally interested. Please be assured that I appreciate the honor.

In the preparation of this paper, many authorities have been consulted. Their names were intentionally omitted from the text in order to avoid diverting from the subject itself. Credit, however, is hereby given wholeheartedly to those whose work has inspired the feeble efforts expressed in these pages.

One of the most important problems confronting the civilized nation today is the maintenance of public health. This is not a problem peculiar to the present generation. It involves a situation which has been combated since the earliest days of civilization. History tells us that the primitive tribes which could best cope with the problem of keeping their individuals in good physical condition emerged as leaders in their struggles for existence and supremacy with neighboring tribes. We need but a glance at the Egyptian, Greek and Roman achievements, and a consideration of the underlying principle of their superiority, to determine that the superior body and mind are the fundamental factors in their achievements. The early civilization along the Nile fell because, during its era of prosperity, it deviated from its ideal mode of living. This is repeatedly seen throughout the history of man in his struggle for superiority.

If we analyze the life, habits and nutriment of a Spartan, Athenian, Roman, Macedonian, or any other subject of a great race at the time when it was at the zenith of its power, we find that each led a comparatively simple life, with cleanly habits, plenty of outdoor exercise and, above all, a simple diet. These three factors constituted the whole secret of a successful and healthy life, and it is with the latter subject that I intend to deal in the following paragraphs.

DISEASES OF CHILDREN'S TEETH

Since this is a very broad subject, it will be necessary for me to present it only in a general way. Caries is the most prevalent and common malady with which we have to deal. It begins in the mouths of children a few months after the teeth erupt and continues until they are lost; influenced greatly by diet, habits and environment. Malnutrition is the most predisposing cause.

Dr. McCollum, one of the best known authorities on diet and malnutrition writes:

"Malnutrition is not, as many have hitherto

believed, ordinarily the secondary result of these physical defects which the clinic seeks to remedy, but it is the primary cause from which those physical defects generally arise. Furthermore, the present widespread view that the most important task in hand is the medical treatment of those children in whom clinically discernible defects exist is a mistaken one. First in importance, from both the standpoint of the physically defective child and that of the national welfare, is the establishment of nearly as possible with the scientific precision necessary to insure optimal well-being." The clinic should occupy second place in the scheme of human betterment.

Since malnutrition produces deficiency diseases and the right kind of nutriment develops healthy individuals, is it not our duty and our obligation to future generations to place these facts before the parents for the betterment of the growing young?

What is wrong with civilized man as an animal? Has he not both the medical and dental professions working for him to prevent these diseases and defects? Yes, but we have all strayed so far from the fundamentals of natural living that the combined knowledge of all the scientists does not keep us well, and does not prevent disease. The practice of prevention is so closely associated with disease itself that we have come to believe in vaccination as the natural preventive of smallpox, in cod-liver oil as the logical preventive for rickets, in pasteurization as the natural method of securing safe milk, in early orthodontia as the preventive for malocclusion, and in extension of the cavity walls of a carious tooth to the sound enamel structure as dental prophylaxis.

Valuable as these procedures are, we are forced to the realization that not one of them is truly preventive. The fundamental truth which we have lost sight of is the inherent ability of the body cells, under normal conditions, to build perfect structures, and to establish and maintain a natural immunity to disease. What must these cells have to build a perfect structure? The human body is made up of sixteen elements, and all animal and vegetable life contains the same sixteen elements and even the soil is similarly composed, so that only by the most perverse and unnatural methods of preparing food can the human animal escape being perfectly nour-

ished. It is man's perversion of his natural food supply which, in my judgment, is the cause of 90 per cent of our physical defects.

In the formation of the human embryo the cells must get their building material from the blood of the mother, and the mother's blood must obtain the sixteen life elements from the food she eats. She must get them from her daily dietary, for if this fails to supply the elements necessary, her bones, her teeth and other tissues will be robbed of calcium and other elements to maintain the developing child. Dentists are all familiar with the deterioration of tooth structure during pregnancy, and this is only one of the many unfortunate conditions developing through ignorance of correct diet. The crowns of deciduous teeth are formed when the baby is born and the cusps of the six-year molars are in process of formation. Who made them? The mother, from the food she ate during the prenatal period. Did her food supply perfect building materials for teeth? Not if she consumed the usual American diet of meat, boiled potatoes, white bread, white sugar, pastries, tea and coffee. These common foods are practically calcium free and her child cannot possibly have sound deciduous teeth without calcium and phosphorus. We are trying to stop dental caries at the wrong end. We must get to the source, which is during the prenatal and pre-school life. If you build a house, and put it on a weak foundation, if you substitute inferior materials in the construction of it, you will expect to have a leaky roof, defective plumbing and other troubles. If we try to build a child's body by substituting refined and demineralized products for Nature's food, we can expect the very defects which inevitably develop.

Show me the deciduous teeth of a child and I will tell you the condition of the osseous tissue of that child. The factors which govern the calcification of the teeth also govern the calcification of the bone, and I believe that a defect like carious teeth can never exist as the sole imperfection in an otherwise healthy body. There is not a tissue in the entire body that can be constructed or maintained without the mineral elements in proper physiological balance. The perversion of the physiological balance found in the natural foods can result in an imperfect structure of any organ, including teeth. If there is one message that I can

bring you, it is to urge you to consider that imperfect tooth structure does not occur as a single defect, but that it is the index to the structure of the other tissues and organs in the body. This viewpoint places a tremendous responsibility upon the dental profession—it means education of the public not only to insure perfect tooth structure, but a sound and healthy body as well. What must we teach regarding prenatal diet? It can be made so simple that any one can understand it.

The truth about diet should be spread by every dentist whenever opportunity presents. The introduction of courses in dietetics into the public school curriculum will provide the largest field for improving the present conditions. Every girl going through the junior and senior years of high school must have the training in dietetics, especially as applied to prenatal and pre-school feeding, before we will have strong teeth and healthy bodies.

Dr. Percy R. Howe, of Boston, Massachusetts has made some very interesting experiments, having obtained changes in the teeth of guinea pigs by scorbutic feeding. He also obtained similar effects in monkeys. All of the scorbutic animals showed changes in the supporting structures of the teeth, both in the soft tissues and in the bony structure. In some, the mandible was extensively decalcified. Caries were found in the first permanent molars and incisors.

More important than looks is the fact that the teeth are the chewing machine that prepares the food for the stomach. A sound set of teeth masticates the food well, so that it can nourish the body; while an unhealthy mouth and a broken down set mean poor mastication, indigestion, malnutrition and lowered vitality. Many systemic diseases may be traced directly to an unhealthy mouth. Oliver Wendell Holmes said that a child's education logically begins with its grand-parents. Its health and teeth have the same source; proper diet from the prenatal period up through adolescence has much to do with teeth and health.

What, then, are the various steps in keeping the mouth healthy? The first begins with the mother; for a baby's first teeth are almost completely formed by the mother while she is carrying her child. Consequently, during this period, every mother should eat the foods that are the source of tooth-building elements,—calcium, phosphorus and the vitamins. These

foods are milk and the dairy products; vegetables, especially green, leafy ones; fresh fruits, especially citrous fruits; whole grain breads and coarse, cooked cereals.

Next, a child should be breast fed. A child develops more during the first six months of life than during any other corresponding period. Therefore, it is extremely important that the child have the best food in the world for it—mother's milk. Moreover, natural suckling stimulates the proper growth and development of the jaws and face; whereas artificial feeding tends to restrict this growth.

Every part of the body must be exercised to keep it normal and healthy, and the mouth is no exception. The Eskimo has teeth almost free from tooth decay and has broad, well-developed arches, due to his diet, in which the food has not been demineralized and degerminated, and due to the fact that he chews. In fact, it is said that one of the duties of an Eskimo wife is to chew her husband's shoes to soften them so that he can put them on. We do not need to chew shoes, but we do need to eat sufficient hard, fibrous foods to give the teeth and gums proper exercise.

Historical research expeditions are continually unearthing skeletons thousands of years old which indicate that in the age when man ate more nearly what he should, in the way he should, dental disease was practically unknown.

Remember the first teeth are important—as important as the second. They are needed for chewing, to keep the face in shape and to guide the second teeth into place.

An authority has said that the most important thing that a child does, physically, from birth to twelve years of age, is to manufacture in his jaws forty-eight teeth.

The growth and development of the upper and lower jaws is dependent in a great measure on the growth and eruption of the teeth, both deciduous and permanent. If the deciduous teeth decay, become abscessed, or are lost before the time that they should be shed, it has a disturbing action on the development of the jaw tissues in that locality and in this way we have unsymmetrical development of the bones and misshapen faces.

Again, the premature loss of the deciduous teeth through decay prevents the child from properly crushing his food and using the

muscles of mastication which are attached to the lower jaw. Although it is harmful to bolt one's food and swallow it without chewing, yet it is more harmful for a child not to use the muscles of mastication, as the development of the cranium or brain case is dependent to a great degree upon the pull of these muscles. The muscles that elevate or close the lower jaws are attached to the bones on the side of the face and cranium and also on the under-side of the skull. When we chew our food these muscles pull on these points of attachment and in childhood they help to produce well-shaped heads, jaws and symmetrical faces.

When the pulps in the baby teeth are exposed from decay, they not only cause pain and suffering, but bacteria may be carried through this tissue to the tonsils and the glands of the neck. If the pulps die and the cavities are open, the bacteria can pass up through the root canals and thus gain ingress into the circulation. Many a child has had his little body infected in this manner, and, if he recovered, some organ or organs of the body were weakened throughout life, becoming a source of future trouble. Professor Osler once said that the diseases of which we die in adult life are those which are contracted or made possible in early youth, and clinical observation seems to bear out his conclusion.

If the baby teeth decay the cavities get packed with food and become breeding places for millions of bacteria. Great efforts are made by parents to secure pure milk for their children. By pure milk, we mean that which contains but comparatively few numbers of bacteria of a harmless variety. Yet, if the parents would look into the child's mouth and could only realize the immense number of germs that were present in those decayed teeth, they would know it was useless to hope that the pure milk would reach the child's stomach in a pure state after passing over those decayed teeth. Although the deciduous teeth are lost in early life, yet it is more important to keep them clean and free from cavities during the growing period than is the preservation of the permanent teeth in adult life. Both sets are important; but of the two, a clean and sound set of deciduous teeth performs a more vital influence for the proper development of a growing body than the functioning of the permanent teeth in adult life.

THE EXCITING OR DIRECT CAUSE OF CARIES.

The exciting or direct cause of caries is generally recognized as lactic acid fermentation of carbohydrates, which form plaques on the teeth, causing disintegration of the enamel and dentine.

Decay of the teeth always starts from the outside surfaces, never from the inside. The surfaces that decay most frequently are first, those between the teeth, at the contact points, second, in the fissures or rough surfaces on the tops of the teeth where you chew, and third, close to the gums where food clings to the border of the gums. The enamel of the tooth is made of crystal-like rods and between them is a cementing substance which holds them tightly in place. This can be dissolved by acids, especially by lactic acid which is very easily formed from sugar. When milk becomes sour it is caused by germs decomposing the sugar in the milk, producing lactic acid which gives the milk its sour taste. Starchy foods, if allowed to remain in the mouth, can be changed to sugar by an ingredient in the saliva. The sugar can then be acted upon by the germs in the mouth and changed to lactic acid, so that it can be easily seen that to leave starches and sugars on the teeth for any length of time is to produce lactic acid which can dissolve out the cementing substance between the enamel rods.

As the germs decompose the starches and sugars in the food, and form lactic acid, the acid is held tightly against the tooth under the tent, becoming stronger as more acid is formed. If it remains next to the enamel of the tooth for any length of time it will start to dissolve out the cementing substance between the enamel rods. These little tents are called plaques and they are formed and stay where the friction of chewing food does not displace them.

It is not generally known that the contagious skin diseases also, if contracted during childhood, bear a direct influence on the enamel of the teeth. Many mothers are inclined to look upon the common skin diseases of childhood as something that cannot be avoided, and frequently no effort is made to prevent these diseases, since it is felt that the younger a child is when it contracts the disease, the lighter the attack. Nor, is it known by the layman that the enamel of the teeth is formed from cells similar to the skin cells and that any eruption

or rash of the skin is likely to affect that formation of the enamel if it occurs during the period of enamel formation.

Every precaution should be taken to prevent a child from contracting measles, chickenpox, scarlet fever, etc. especially from birth to about fourteen years of age, during which period the enamel of fifty-two teeth is formed.

It is quite common to see teeth with an enamel surface that is pitted or grooved, and in many cases as much as half of the crown of a tooth will be minus any enamel due to some skin disturbance during its formation. Enamel somewhat similar in appearance can also be produced by any severe nutritional disturbance. It is practically impossible to prevent the decay of the defective enamel; therefore, any rash or eruption of the skin should be avoided for this reason.

THREE YEARS' OBSERVATION.

Beginning in December, 1924 in the primary grades of our schools, completing the work in February, 1925 in the high schools, 12,967 pupils' mouths were examined and charted by forty members of the Norfolk-Tidewater Dental Society, with the co-operation of the Health Department and the School Board, according to the following report:

There were 12,967 children examined, 48,901 carious teeth, 38,241 which needed filling, 10,660 to be extracted, 2,065 which had been prematurely extracted, 7,062 needing prophylactic treatment.

The total of all defects were 58,028. There were also many cases of malocclusion, which were caused by improper diet and premature extractions, the number of which we have no record.

This shows the percentage of imperfect mouths from seventy-six to one hundred, and average of 93 per cent.

THE REMEDY

We should have an educational program in our school system, teaching the parents and children the necessity of the proper diet and oral hygiene. Also a dental clinic, adequate to the need of the present day.

As an example, I would like to give you some very interesting data which I have been able to get from Bridgeport, Conn., based on a population of about one hundred thousand

Summary of Examinations in Norfolk Public Schools by Norfolk Dental Clinic.

SCHOOLS	Number Pupils Examined "T"	Cleaning or Prophylactic	Cavities "O"	To be Extracted "X"	Premature Extractions "EX"	Perfect Mouths "P"
John Marshall.....	496	423	1332	483	3	84
J. E. B. Stuart.....	979	566	3284	870	451	90
Bay View.....	197	89	662	216	105	10
Campostella.....	133	69	460	124	42	6
Boush Street.....	192	140	560	296	1	7
George Washington.....	221	154	409	106	31	18
Stonewall Jackson.....	269	144	691	164	53	21
Villa Heights.....	92	50	411	250	-----	1
J. B. Hope.....	234	215	1207	416	7	3
John Goode.....	291	112	294	706	-----	38
Hemmingway.....	249	48	453	163	-----	61
W. H. Taylor.....	574	198	1117	318	-----	89
Patrick Henry.....	381	231	2599	374	46	26
Robert Gatewood.....	479	243	917	887	-----	77
Larchmont.....	317	131	1049	353	111	8
Meadowbrooke.....	150	72	526	-----	115	13
Chesterfield Heights.....	148	27	699	109	52	-----
Ballentine.....	265	255	1104	273	1	-----
Henry Clay.....	407	174	848	374	23	1
Ocean View.....	439	266	1623	561	108	2
James Monroe.....	845	209	2285	727	20	49
Robert E. Lee.....	716	501	1867	325	22	23
Lafayette Annex.....	469	75	1330	516	-----	47
James Madison.....	816	541	2258	1151	251	15
Total Grammar Schools.....	9659	4932	28082	9735	1492	696
Ruffner High School.....	853	552	2530	302	222	56
Blair High School.....	817	727	2750	207	52	90
Maury High School.....	1638	851	4949	353	298	115
Total in High Schools.....	3308	2130	10229	925	573	261
Total in Grammar Schools.....	9659	4932	28082	9735	1492	696
Total in All Schools.....	12967	7062	38241	10660	2065	957

Grand Total of Defects in Grammar Schools.....44783

Grand Total of Defects in High Schools.....13545

Grand Total of Defects in All Schools.....58328

people. Since 1914 the city has established a modern dental clinic.

Their program consists of educating the parents and children in the proper foods and all phases of hygiene. Also tooth brush drills and mouth hygiene. Co-ordination of the class, instruction in diet, with instructions given in the domestic science kitchen. The domestic science course is compulsory for all girls beginning at the sixth grade and is also a promotion requirement. One of the requirements for passing from the fifth to the sixth grade in their public school is to have no unfilled cavities. In the fall of 1922 one hundred per cent passed.

They also show from the death rates, from all causes, they have been able to find records

of three diseases which are so common among children: namely, diphtheria, measles, and scarlet fever. These are figured on a basis of per one hundred thousand population and showed the following: Deaths from diphtheria in 1914 were 36.6 per cent and were reduced to 18.7 per cent in 1918. Deaths from measles in 1914 were 20.0 per cent, being reduced in 1918 to 4.1 per cent. In 1914 deaths from scarlet fever showed 14.1 per cent, reduced to 0.5 per cent in 1918.

In 1912 the cost of re-educating retarded pupils in that city was 42 per cent of the entire budget and by 1918 they had reduced it to 17 per cent. This meant a reduction of retardation by 50 per cent, which is a really wonderful change to be accomplished in any school

system in a period of five or six years. Few people have realized the cost in money—which is only one of the evils of retardation—of the re-education of our retarded children. A retarded child is a liability to the tax payer, a burden to the teacher, a hindrance to other pupils and a misfit to society.

One has only to consider the financial side to recognize that any reduction in retardation is an accomplishment devoutly to be sought through all legitimate means.

It is not that systematic examinations of school children provide interesting and valuable statistics; it is not that the defects noted are remediable, but the great truth to be drawn from this record is that the majority of the defects are *preventable* and that their prevention is a matter of persistent education along three definite lines, which seem to be the fundamental basis of general health as well as dental health: (1) proper food; (2) sanitation, and (3) health habits.

What has been accomplished in Bridgeport and other cities can be done in Norfolk.

Gentlemen, the fact that 93 per cent of the children in Norfolk city are in need of dental attention is appalling. The children of today are to be our moral, social and civic leaders of tomorrow. If they are deprived of health and comfort, and afflicted with diseased and unhealthy bodies and minds, we cannot expect them to succeed. The greatest blessing which we can bestow upon them is health and education. It is the duty of every man and woman in our community to give their support and co-operation to this most worthy cause.

In the name of humanity and for the sake of our children, we *must* succeed. I ask you, is there anything of greater importance today? We need *your* support and co-operation. With it, we can succeed in this work. Without it, we are greatly handicapped and have a difficult task before us.

612 Taylor Building.

PYELITIS IN PREGNANCY.

By JULIAN L. RAWLS, M. D., F. A. C. S., Norfolk, Va.

With the perfection of the cystoscope and its comparative ease of manipulation we learned that vesical irritation and pyuria were very seldom due to a cystitis but almost always to an initial renal infection. So, for the last few years, our journals have been full of reports of pyelitis, and quite recently

there has been a shower of symposiums and sporadic articles on the pyelitis of pregnancy. It is from a rehearsal of these that I have attempted to glean the facts which I wish to present in this paper.

Dr. Holmes, of Chicago, has called attention to the fact that we may be dealing with either a pyelitis *in* pregnancy or a pyelitis *of* pregnancy. He considers the pyelitis *in* pregnancy to be a flare-up of an old recurrent pyelitis to which the patient has acquired a certain amount of immunity; whereas the pyelitis *of* pregnancy is ushered in with an extremely abrupt onset, with marked symptoms, with pain and high temperature, vesical irritation, etc.

Practically all agree that, in most of the cases, the infections are blood borne and that the organism is carried from some distant foci of infection, particularly the tonsils and teeth or the accessory sinuses. The gall-bladder and appendix must be remembered as possible foci.

There is a wide variation in the prognosis given by different writers. Some of them take an exceedingly pessimistic view if the condition occurs in the early months of pregnancy, while others are very optimistic regardless of the period of gestation.

Cary, of Roanoke, writing in the VIRGINIA MEDICAL MONTHLY, reports nineteen cases of pyelitis in pregnancy seen by him in two years, fourteen of which were successfully carried through their pregnancy. Of the five interrupted cases, only one prospective mother apparently suffered from an infection confined to the kidney pelvis alone. He reports two cases in which he used continuous ureteral drainage for six weeks. The catheters were changed once a week and were frequently washed out with a boric acid solution. He believes that if the condition fails to respond to treatment, labor should be induced, particularly if the infection occurs in the early months of pregnancy. He states that "even though the mother goes to term, she is taking a very grave risk with her life, or of irreparable damage to her kidneys." He also thinks that in the early months of pregnancy engorgement of the pelvic vessels closely connected with the uterus may be an exciting cause of pyelitis in a kidney which already has a predisposition to pick up an infection. It is also believed that rotation of the uterus

with the twisting of the ureters would have the same effect in the early months of pregnancy. In the latter months of pregnancy pressure from the enlarged uterus is generally conceded as a probable exciting cause.

Kloman, of Baltimore, speaking before the Southern Medical Association, reported twenty-eight cases of pyelitis in pregnancy seen by him in five years, twenty-one of which responded to therapeutic measures, only seven requiring local treatment.

Dr. Norris W. Vaux, of Philadelphia, in an article read before the American Gynecological Society in May, 1923, states that pyelitis in non-pregnant women is comparatively infrequent as a complication or sequela of other febrile diseases, while in pregnant women it is by no means of infrequent occurrence. He considers that the best results are obtained by symptomatic treatment, and prefers the alkalis to hexamethylenamin. He states that the infection runs a very definite course of from seven to seventeen days and that in a good many cases, although the symptoms entirely disappear, the pyuria and bacilluria persist throughout the pregnancy. He is not particularly enthusiastic for cystoscopic treatment and pelvic lavage. He is exceedingly optimistic as to the prognosis and states that the prospect for the continuation of pregnancy with conservative measures is excellent.

Hunner, of Baltimore, states "an interesting point, of great practical value, is that it is not always necessary to treat a pyelitis of pregnancy until we get entirely rid of the infection. If we dilate the stricture area at ten day intervals until the patient has no further chills and fever, even following the trauma of dilatation, we may cease treatment and give the patient a fairly good prognosis of carrying to term, even though the urine may still show an infection." Incidentally, he states that in thirty-five cases of pyelitis in pregnancy, he found strictures in thirty-four. This incidence, however, has not been reported by other observers.

My own experience has been that it is not necessary to continue treatment until the specimens are clear of pus. Two or three of the cases which I wish to report continued to show large quantities of pus throughout their pregnancy with a complete subsiding of all con-

stitutional symptoms after a lavage of the renal pelvis.

Dr. Charles Norris, of Philadelphia, states that he has never had to empty the uterus for a pyelitis complicating pregnancy. Dr. Floyd Keene states that from 60 to 70 per cent of all acute pyelitis cases will recover under medicinal measures.

Dr. Vaux has called attention to the fact that practically all pregnant women have a residual urine after full attempts to empty the bladder. He states that the residual is usually equal to the amount voided, and he considers this a provocative factor in the etiology of pyelitis.

Dr. John O. Rush, of Mobile, Alabama, writing in *Surgery, Gynecology and Obstetrics* for March, makes a plea for the treatment of pyelitis of pregnancy with an in-dwelling ureteral catheter. He states that the condition is so frequently confined to the right side that he does not catheterize the left ureter if it spurts clear urine in the bladder. His technique is to introduce, if possible, a number 9 X-ray catheter to the right kidney, which is left in place. The nurse is instructed to inspect the catheter every hour, and, if it is not dripping, to inject sterile water through it with a hypodermic syringe. He states that he has left this type of catheter *in situ* for twenty-six days without the formation of urinary deposits.

The symptoms vary from a vague, indefinite discomfort in the back, with some frequency of urination and occasional pus cells in the urine, to sharp attacks of kidney colic, with chills and fever, urine filled with pus and albumin, on to grave toxemia and marked prostration.

Allowing, then, for the natural variant, the man with the contrary complex, the consensus of opinion seems to be that a pyelitis is an incident of pregnancy, grafted usually on a pre-existing kidney lesion, frequently a flare-up of a pyelitis that has occurred before; that the source of infection is some distant focus and that the organism is blood-borne. This organism is frequently a colon bacillus, but both the staphylococci and streptococci have been found. It is also generally conceded that some form of renal pelvic stasis plays an important part, either by stricture of the ureter, or by obstruction to the lower ureter by en-

gorgement of the uterine vessels, or torsion of the uterine cervix, or pressure of fetal parts, or residual urine in the bladder itself.

It is also generally agreed that the prognosis is good and that the condition will respond to conservative therapeutic measures in more than 50 per cent of the cases. These measures should consist of absolute rest in bed, of a very bland diet and the forcing of a large amount of liquids by mouth, by bowel, subcutaneously and, if necessary, intravenously. But Cow has recently called attention to the fact that water possesses more diuretic properties if administered by mouth than when given either under the skin or intravenously. He claims that there seems to be something in the duodenal secretion which acts as a diuretic on the kidney structures. Bearing this in mind, it is possible to give large quantities of water to these patients through a duodenal tube which may be left *in situ*. Apparently, better results are obtained from the alkalies than from hexamethylenamin and sodium acid phosphate, although it is not a bad policy to switch the reaction of the urine every ten or fifteen days, as some of the organisms are facultative. It is too early yet to state what the new kidney antiseptic, hexylresorcinal, will do. The foci of infection should receive proper attention.

If these methods fail, the condition should be treated by the passage of full-size ureteral catheters and renal lavage, preferably with some silver product, rather than the newer antiseptics. Apparently the benefit is obtained more from the passage of the full-size sound than it is from the lavage, since proper drainage seems to be a more important therapeutic measure than the application of a drug, which in the nature of things, must be very fleeting in its contact. If the condition does not improve, an indwelling ureteral catheter or catheters may be resorted to and intermittent or continuous irrigation with some mild antiseptic, such as boric acid or saline, may be tried. The question of a therapeutic abortion is largely a question of personal equation, but we should always remember that it is possible to cause permanent damage to a kidney by a too long attempt to conserve a pregnancy, and I feel that if the pregnancy has advanced sufficiently far to expect a viable baby, we are

justified in cutting short our conservative measures.

Within the last three years I have seen about twenty cases of pyelitis that were connected in some way with pregnancy. I saw several of the cases within the first ten days after delivery, and one or two while they were still nursing their babies. The others were seen before delivery.

Only one of these cases was treated entirely by therapeutic measures. But it must be remembered that the majority of them were referred to me for cystoscopic treatment after therapeutic measures had failed, and this takes no account of the number of cases which may have responded to the therapeutic measures instituted by their attending physicians.

I wish to report a few of these cases which exemplify the different types referred to in the body of this paper.

Mrs. I. T. was referred to the office for treatment when four or five months pregnant because of irregular chills accompanied by urinary symptoms. The right kidney specimen showed a large number of pus cells in clumps, the left specimen was negative. She received a double renal lavage and did not require any further cystoscopic treatment until after her delivery, her clinical symptoms clearing up. She was re-cystoscoped on March 7, 1924, several months after her delivery. Her right kidney specimen showed an occasional pus cell. On March 21st her kidney specimens were entirely clear.

Mrs. M. W., a patient of Dr. I. L. Chapman, admitted to the hospital with a double pyelitis when seven months pregnant. She had been under treatment for several weeks at home, without relief. She was given a double renal lavage with silver nitrate and returned home to continue her general treatment. She was delivered later of a living baby without subsequent trouble.

Mrs. E. S., a patient of Dr. I. L. Chapman, admitted to the hospital when five or six months pregnant because of chills, fever and vesical disturbances. The left kidney specimen showed pus cells in clumps and a bacillus, probably colon. She had no further chills after one renal lavage.

Mrs. W. C. P., primipara, first seen on September 11, 1923, when three months pregnant. She was complaining of pain and fre-

quency of urination. Her specimen showed a three plus albumin and a large number of pus cells. She was treated until December 4, 1923, without very much improvement. At that time she was cystoscoped and subjected to a renal lavage. Although her urine still contained pus cells she went on to a normal delivery on March 13, 1924, without subsequent clinical symptoms.

Mrs. E. P., age seventeen years. This patient was admitted to the hospital on September 11th when about four months pregnant, complaining that for four or five weeks she had had an aching pain, mostly in the back, but at times radiating to the front. She had noticed hematuria twice, once in June and once in July. She had lost about twenty-five pounds in weight in the last four or five months. The bladder specimen showed a three plus albumin, many pus cells, many red blood corpuscles and a motile bacteria. On a cystoscopic examination the right kidney specimen was clear, the left turbid and the field covered with motile bacteria and many pus cells. The stained specimen showed a coccus and a long bacillus, negative for tuberculosis. She was given a renal lavage and sent home. She returned to the hospital on October 7th and her kidneys were again washed out. She had no subsequent trouble.

Mrs. W. P. H., on February 20th, when seven months pregnant, reported to the office with albumin and pus cells in her specimen. As she did not respond to therapeutic measures satisfactorily, she was cystoscoped on March 13th and subjected to a double renal lavage. This also did not improve her condition. On March 28th she was taken to the hospital and labor induced by the introduction of a rubber catheter. She delivered herself spontaneously the following day of a living baby and after her lying-in had no subsequent trouble. Both kidney specimens showed a growth of colon bacillus.

Mrs. H. K. T. came to the office when six and a half months pregnant complaining of frequency of urination with pain. She had one plus albumin and a large number of pus cells in her specimen. She was put to bed on a bland diet with forced fluids, etc. She was kept in bed for about ten days, when her symptoms had all disappeared and her urine was entirely clear. She was delivered on

September 29th without further trouble. This is the only case of the entire series that was treated entirely by therapeutic measures.

Mrs. R. P. was taken six days ago with a rather sharp pain in her back; later the pain became aching in character. This pain was low down in the lumbar region and did not radiate up or down. She had had some burning and frequency of urination since the attack started. The physical examination showed considerable tenderness on pressure over the right kidney region. She was about six months pregnant. Cystoscopic report: There was a slight congestion of the bladder, but no intolerance to fluid. Both ureters catheterized easily. Left catheter began discharging a clear urine at once; right catheter was dry. Suction to that catheter resulted in twenty c.c. of cloudy urine. Then the catheter ran clear for several minutes until it again became plugged. Phthalein returned from the left side in eight minutes; none had appeared on the right side at the end of fifteen minutes. The right kidney specimen showed a field covered with pus cells and motile bacilli; the left kidney specimen, a few pus cells and motile bacilli. All kidney soreness had disappeared at the end of thirty-six hours and she went on to term without subsequent trouble.

Mrs. A. A. was admitted to the hospital on November 12th with an acute toxemia of pregnancy. She was vomiting incessantly. Her specimen showed a three plus albumin and a field covered with pus cells. She was saturated with normal saline, subcutaneously, and given sodium bicarbonate and glucose per rectum. Her nausea and vomiting stopped and her general condition improved. She was cystoscoped and subjected to a double renal lavage with 1 per cent silver nitrate. She was discharged on November 19, 1924, and although her specimens were full of pus until after her delivery, she showed no further clinical symptoms of toxemia and was delivered on March 7, 1925. During her second admission to the hospital her specimen still showed a two plus albumin and a large number of pus cells, but her highest temperature was recorded as 99.4 degrees F.

Mrs. A. Z. was admitted to the hospital on the service of Dr. E. R. Altizer. She was having frequent attacks of left-sided renal colic,

requiring morphia to relieve her. She was pregnant about term. She delivered herself spontaneously three days later. Her bladder specimen showed a four plus albumin, many pus cells, some in clumps. An X-ray of her kidneys and ureters was negative for calculi. On cystoscopic examination she proved to have a stricture of her left ureter, which was fairly easy to dilate. She was cystoscoped three times and her attacks of colic disappeared. The last urinalysis showed both kidney specimens entirely clear.

Mrs. A. H. This girl was admitted to the hospital on January 8, 1925, for threatened eclampsia. She had a four plus albumin in her urine and her field was covered with pus cells. She was unable to see, and she was having muscular twitching and other evidences of acute toxemia. The induction of labor was begun and she was delivered the following day by Dr. I. L. Chapman. Nine days later she had a temperature of 102.6 degrees F. and the next day it was 103 degrees F. She was cystoscoped on the 20th and 24th. The first lavage was with silver nitrate, the second with mercurochrome. She was discharged on January 26th with a normal temperature. She was readmitted on February 2nd with a temperature of 103 degrees F. and was cystoscoped and a pelvic lavage given on the 2nd, 6th and 9th. Her temperature was normal after the 6th and she was discharged on the 10th. She has had no further clinical symptoms.

Mrs. M. J. This case is reported because it was originally treated as a pyelitis complicating pregnancy, and because of her rather interesting history. Her mother states that when about three years old she had attacks of passing blood from her kidneys, without any other symptoms. This continued at irregular intervals. When she was fourteen years old she had a very thorough urological examination consisting of X-ray and cystoscopic studies. The conclusion at that time was that she had an infection, probably a pyelitis, of the right kidney. I first saw her on October 15, 1924. She was nineteen years old and seven months pregnant. Her bladder specimen was full of pus and she was having irregular chills and fever. The left kidney specimen consisted of clear urine, the right nearly all pus. A white blood count was 14,800, polys 87 per cent. She had a right renal

lavage of 1 per cent silver nitrate on October 15th, 21st and 31st, with very little improvement in her condition. On November 16th she was admitted to the hospital for the induction of labor. A bag was introduced and when it was expelled the cord became prolapsed. As soon as this accident was discovered she was anesthetized and the baby delivered, but it could not be resuscitated. Before she left the hospital an attempt was made to make a pyelogram of the right kidney, but the plate showed all the bromide in the bladder. On February 18, 1925, she was readmitted to the hospital. At that time she had a total phthalein of 40 per cent and 20 per cent for the two hours. Her left kidney specimen was clear. No specimen was obtained from the right side, because the catheters continually became blocked with pus. The bladder specimen was nearly half full of pus. The kidney was removed on February 20, 1925. She proved to have a displaced kidney lying just across the brim of the pelvis, with a very short, wide-open ureter which accounted for our inability to make a pyelogram. It also probably accounts for her comparative freedom from serious systemic damage during the length of time she had harbored this pyonephrotic kidney. On section the kidney was found filled with greenish pus, with several soft flat stones. These stones had not shown on X-ray.

She left the hospital on March 3, 1925, with her specimen practically clear. She has put on considerable weight since her operation and is apparently entirely well.

708 Medical Arts Building.

DIABETES AND THE GENERAL PRACTITIONER.*

By W. P. JACKSON, M. D., Roanoke, Va.

From Joslin's observation that there are in the United States alone about one million diabetics, and the report of the Metropolitan Life Insurance Company that the mortality from diabetes dropped 11.4 per cent during the past year, attention is at once brought to the tremendous part the treatment of diabetes plays in general medicine.

One of the greatest advances in recent years in this treatment is the establishment of a clear rational basis for proper diet adjustment.

*Read before the Walter Reed Medical Society, Williamsburg, Virginia, May 28, 1925.

The first of these principles is that of total dietary restriction to keep the bodily metabolism at a minimum. The next is protein restriction. Proteins cause a greater stimulation of metabolism than either of the other foods, hence they should be given in quantities sufficient only to prevent use of the body proteins. The third principle is the relation of carbohydrates to fats.

Too much carbohydrate restriction causes acidosis by incomplete fatty acid metabolism. The minimal point of this restriction has been given us by Woodyatt and Shaffer. The idea is that the combustion of one molecule of glucose will cause the combustion of one molecule of fatty acid. Less glucose than that results in acidosis. The molecular weight of glucose is 180 and that of fatty acid is 270. Reducing that to simple terms, a diet containing as the end products of metabolism one gram of glucose for every gram and a half of fatty acid will prevent this acidosis. In practice this will nearly always work.

Proteins are split up in 58 per cent glucose and 46 per cent fatty acid. Fats are converted into 10 per cent glucose and 90 per cent fatty acid while all of the carbohydrates are converted into glucose. From this we can readily calculate the food composition and fuel value of a known diet. The minimum of protein allowed should be about $\frac{2}{3}$ to 1 gram per kilo of body weight, and for a person taking moderate exercise this seldom exceeds seventy grams for the twenty-four hours. Growing children may require three to four grams per kilo, especially if they are undernourished. The number of calories needed by the individual will vary from 1,500 to 3,000 per day depending on the patient's age, size, and activity. Children, of course, will require less and laborers more than those figures. With the amount of protein designated and the number of calories required by the patient the amounts of carbohydrates and fats will be determined when this $1\frac{1}{2}$ to 1 ratio is kept. If a patient develop acidosis without excreting sugar on a diet such as that, it is almost a certainty that he is not getting enough food and is drawing on his own body fat with an upset of this ratio. For a person weighing 110 pounds, or 50 kilos, and requiring 1,500 calories, a diet to fulfill these requirements will be about C-50 gm., P-50 gm., and F-120 gm. For a person

weighing 154 pounds, or 70 kilos, and requiring 2,600 calories, the diet needed will be C-86 gm., P-72 gm., and F-200 gm. For a child five years old weighing 44 pounds, or 20 kilos, the diet will be about C-30 gm., P-40 gm., and F-83 gm. (Samples of diets cannot be given here because of lack of time and impracticability.) There are numbers of good diets in Joslin's Manual and with these and the available food as a guide for the patient many valuable suggestions may be gotten.

In some severe cases with large doses of insulin required to keep them sugar free, it may be wise to try to substitute glycerin for at least a part of the carbohydrate, allowing about 3 grams of glycerin for each gram of carbohydrate substituted. Ten to 20 grams may thus be replaced by the glycerin. This glycerin can be given in coffee or with cream and is not considered very bad to take. There may be an occasional patient who will show some gastro-intestinal upset from it and in those cases it may have to be discontinued. The fuel value of glycerin is 4.3 calories per gram as compared with carbohydrates 4.1 per gram. Glycerin is split up into 40 per cent carbohydrate and the remaining 60 per cent is presumably utilized as a non-carbohydrate antiketogenic substance, so that by this substitution a food of slightly higher fuel value is given and it allows a higher fat metabolism with less insulin. We are at present using this on two patients. One, a lady who came to us about five months ago with a history of progressive loss of weight and strength and marked thirst. Her urine had considerable sugar and acetone. We put her on a maintenance diet with about 60 units of insulin a day. On this regime she did well and remained sugar free for about three months. Two months ago a blood sugar test showed 140 mgm. per 100 c.c. of blood, and we raised her insulin dosage slightly. A few weeks later she came back reporting sugar and acetone present at 11:00 A. M. each day. She was free the remainder of the day. Then we began giving her large doses of insulin before breakfast and four doses a day till finally she required 95 units a day with a very strict diet to keep her sugar free. With that condition we decided to use glycerin, and now she is taking one ounce a day with about 10 grams of carbohydrate substituted and a diet

of C-55 gm., P-69 gm., and F-165 gm. With that change, her insulin has been dropped to 83 units a day. She continues sugar and acetone free and has gained about two pounds in weight. She said she felt better the very first day she started using the glycerine. The other case is also taking large doses of insulin and we have started him on glycerin. He takes it well with no complaint and has been able to reduce his insulin some. The exact amount of reduction I am not able to say because of his inability to keep an exact record.

The introduction of insulin by Banting and his associates changed the old picture of gloom and despair to an atmosphere of brightness and one full of hope. In nearly all cases it carries with it the assurance to the patient that he can go back to his former occupation, eat sufficient food to keep him properly nourished, and allow him to continue as a normal citizen, except that he must always adhere to the proper dietary restrictions, with insulin if necessary. Banting estimates that about 80 per cent of diabetics will do well without insulin and I believe he is approximately correct. Harris states that in his series about 40 per cent require no insulin. In our own series we find about the same as Harris reports. These latter figures are lower than Banting's estimation, and I think the reason is that many diabetics are discovered by their family physicians and by simple dietary restrictions are kept sugar free and thus never require more vigorous treatment.

What has been said so far refers only to the simple uncomplicated cases. The treatment of complications at times taxes our every effort and resource. Coma is one of these complications. Many times diabetics are first seen in coma. The question then is one of diagnosis. The air hunger and fruity odour of acetone on the breath will be a helpful guide, but the examination of the urine, which will probably have to be obtained by catheterization, showing the strong reaction for sugar and acetone, will confirm the diagnosis. This condition demands immediate and vigorous treatment. One case may illustrate: About four weeks ago one of my colleagues was called to see a patient in a comatose condition. After much trouble in getting a history he learned that I had previously treated her for diabetes and he then called me. I had treated her

previously, but in spite of all my efforts to get her to come in and have her condition checked up, she had refused and had eaten anything she wanted and taken no insulin during the past year. I went immediately to her home and when I arrived I found her lying in bed in coma. The acetone odour was noticed immediately on entering the room. Her breath was rapid and deep and her tissues were somewhat desiccated. I gave her 25 units of insulin intravenously and sent her to the hospital. The first thing we did on her arrival at the hospital was to give her a glass of orange juice with a little sugar added. Fortunately she could be aroused sufficiently to swallow fluids. Next we got a catheterized specimen of her urine which showed a strong reaction for both sugar and acetone. A blood sugar test showed 1,000 mgm. of sugar to 100 c.c. of blood. Twenty-five more units of insulin were given about two hours after the first dose. She was next given an enema which was followed by as much water per rectum as she would absorb, and as much fluid was forced by mouth as she could be made to swallow. In six hours, after having taken 80 units of insulin, she would answer questions intelligently and was well oriented. In twenty-four hours she apparently was perfectly rational and the acetone reaction was slightly positive, though the sugar test was strongly positive and her blood sugar was 277 mgm. per 100 c.c. She had taken 185 units of insulin. During the first day she was in the hospital her pulse was rapid and weak, showing the marked strain of this condition on the circulation. After consciousness was restored she ran a slight fever and complained of some pain in her right ear. Examination showed a furuncle in the ear. Leucocyte count was 14,100. This slight infection, I feel sure, is what precipitated the coma, but she told me afterwards that in the previous few weeks she had noticed a great increase in thirst. Her course after that was uneventful.

Another case we had in the past few months had been in coma about twenty-four hours, a much longer time than this previous case, and he required 300 units of insulin and thirty-six hours to restore consciousness. His blood sugar on entrance to the hospital was 1,600 mgm. per 100 c.c. When consciousness was restored his blood sugar was still high, 1,428 mgm. per 100 c.c. Urine sugar was strongly

positive and acetone negative. I want to emphasize the importance of early treatment because with much delay there seems to be some damage to the kidneys which may result fatally even though the acidosis is overcome.

The next complication I want to speak of is gangrene. Joslin stresses the extreme importance of this in association with diabetes, and personal experience with a few cases gives one a lasting impression. I dread it more than coma. These patients usually are elderly, with sclerotic changes in their arteries, and are naturally bad risks. The dry gangrene can usually be treated expectantly, but the moist gangrene requires heroic treatment. There is often a great deal of pain in these cases and the pain may well be sufficient cause for amputation. The last case we had gave me some valuable lessons. She was a maiden lady about seventy-five years old. Her blood pressure was slightly elevated and she had had diabetes for several years. Gangrene involved parts of all the toes of the right foot and the foot, extending up about two inches above the toes. Her pain was largely in the great toe where there was a slight amount of moist gangrene under the nail. We tried to treat her medically and had little trouble in getting rid of her sugar, but the foot would not heal, though at times it appeared much improved and we were thus encouraged to continue the medical treatment. Finally we persuaded her to have the great toe removed. This was done, yet she did not improve, in spite of the fact that her diabetes was well under control. About two weeks later, after having had considerable pain in that foot, she died. Now if that foot had been amputated in the beginning, she at least would have been relieved of a great deal of suffering and might have lived a little longer, though she was old and showing degenerative changes.

Infections also are much more serious when associated with diabetes and, as pointed out above, may very easily precipitate coma. They cause a marked disturbance of the metabolism and the patients are apparently much more resistant to the action of insulin. Their glucose tolerance as well as their degree of intoxication and appetite are so variable that the usual actions of insulin are not always seen, and under these conditions multiple small doses sufficient to combat the acidosis, rather than the glycosuria, will give best results. Or in

some cases where their appetites vary so much, it may be advisable to give the insulin after the nourishment has been taken.

In diabetes complicated by surgical conditions we advise clearing up the glycosuria and acidosis before operation, if surgery is not urgent, but in acute surgical conditions to delay is fatal, though we try to feed the patient to within at least three hours of the operation, and a short time before giving the anaesthetic, give a moderate dose of insulin to combat any tendency to acidosis that may develop. Immediately following the operation fluids are forced, and glucose and insulin are given intravenously, when necessary, very much as if the patient were in coma, but less vigorously. Ethylene we consider the safest general anesthetic.

A word might be said here about alkaline therapy in diabetes. For a considerable time previous to insulin, sodium bicarbonate was given in large doses and even to the present time most clinicians advocate its use in acidosis. Joslin on the other hand feels that it has no place in the treatment of diabetes. Recent observations tend to prove Joslin right. Overdoses of it may precipitate tetany, as proven by Harrop. Again, its constant use tends to promote the constant excretion of acid substances. It has recently been shown that the disturbances of carbohydrate metabolism caused by large doses of bicarbonate may be so like that of diabetes that the condition may be made worse by it, and that fat metabolism in the presence of alkalies and absence of carbohydrates is definitely inhibited. Our cases of coma have yielded to treatment without alkali.

I would like especially to emphasize excess fat as playing a very important part in the production of this disease. In our last series of fifty cases, twenty-two of them were obese and over 50 per cent of these required only an adjustment of their diets to reduce their weight to normal and successfully control their diabetes. They thus show, as is usually the case, that diabetes is mild in obesity. Recently we had a patient who was sent to us with the history of having been over-fat for several years, and during the past few months began excreting sugar. Her blood pressure was a little high. She weighed 308 pounds and it was almost impossible for her to get around.

I disregarded the sugar and put her on a fat reducing diet, and with this diet she has lost forty-three pounds in the past two months. Incidentally she has had no more trouble with her glycosuria and feels better than she has felt in years.

Instruction of these patients, I think, is of the utmost importance—as much as their time and intelligence will permit. Certain fundamental principles are absolutely necessary, such as the relation of the amount of insulin to the carbohydrates. They must be impressed that these two factors should always vary in direct proportion so that any possible hypoglycemic reaction may be avoided. They should be instructed to weigh their own food, certainly in severe cases, because guesses, such as the size of a small slice of bread, will lead to wide variations from a prescribed diet. While this is very essential in the severe cases, the great majority of them can do without this weighing by taking a diet expressed in quantities measured in household utensils, particularly if they choose their diets from foods low in carbohydrates. A weekly weight record should be kept and they should be encouraged to keep their weight certainly not above normal. If possible they should learn the composition and fuel value of the common foods. Some of Joslin's little cards contain practically all that information. Those little cards, and particularly his latest manual for diabetics, are of great value, enabling these patients to manage their diets most successfully. I recommend that they all have a copy of this book. With this knowledge they can very easily vary their diet from day to day and much more readily satisfy their appetites. They certainly should be taught to test their own urine for sugar and acetone. This part of the treatment will consume much time, but it will amply repay by getting far better results and will make the work much more interesting to the physician.

When insulin first began to be used much hope was expressed that it might give the pancreas physiological rest and thus restore at least a part of its function. Recent work from the University of Toronto, while not conclusive, at least gives some hope that this actually may be true. They report regenerative changes in the islands of Langerhans in a well-treated case that came to autopsy through accidental

death. With this information, as well as the observations of several clinicians, that the dosage of insulin can be reduced in some cases after a period of good treatment, we are spurred on to a more vigorous and more hopeful campaign of treatment.

In conclusion, I want to emphasize a few special points; the first of these is the necessity for all of us to be prepared to recognize and diagnose diabetic coma and to institute vigorous treatment immediately; second, take time to instruct them in the essentials of their disease and how it is treated. If you are too busy to do it, as no doubt many of you are, then send them to some one who has the time; third, don't forget to emphasize to them the importance of their personal hygiene. Abrasions and cuts should be attended to promptly and thoroughly, and "any diabetic over fifty years of age may well bathe his feet as carefully as his face if he wishes to avoid gangrene;" fourth, have a follow-up system by which the patients either report to you in person at least once a month, or write, because they constantly have to be encouraged and reminded of the importance of always adhering to the principles of the treatment as laid down. It is mighty easy for them to get discouraged and forego treatment with disastrous results; fifth, we can now offer them some hope, though it be small, that by vigorous adherence to treatment their disease may be at least partially cured.

I know of no disease that requires more study and hard work than this one, in its successful treatment, but it will give large remuneration, may be not so much financially, but rich in grateful patients.

Jefferson Hospital.

THE TREATMENT OF NAUSEA OF PREGNANCY.*

By M. PIERCE RUCKER, M. D., Richmond, Va.

There are almost as many treatments for the nausea of pregnancy as there are obstetricians. The reason for this, of course, lies in our very vague ideas as to its etiology. By some it is regarded as a neurosis; by some as a manifestation of anaphylaxis; by some as an endocrine disturbance; by some as a toxemia; and by some as a mixture of neurosis and toxemia.¹ Those who hold to the first hypothesis give as the reason for their belief the

*Read before the Manchester Medical Society, June 1, 1925.

fact that hyperemesis is sometimes relieved with startling suddenness by procedures that could have no possible benefit except in the way of suggestion. By the same line of reasoning, the prompt relief of symptoms and gain in weight that has been known to follow an exploratory laparotomy would prove that carcinoma of the stomach is an hysterical manifestation.

Until some one clears up the question of etiology our treatment must necessarily be empiric.* From a therapeutic standpoint one may divide the cases into two groups:

(1) Mild or ambulatory and (2) severe or hospital cases.

The prompt and efficient treatment of group one will largely obliterate group two. It is in group one that the greatest neglect occurs. There is a widespread belief that nausea and vomiting is a necessary evil in pregnancy and that so long as the patient does not lose too much weight or develop signs of acidosis nothing need be done for her. When Hirst's² article, recommending corpus luteum for these patients, appeared in 1916, I began using it with a great deal of success, so much so that since then I have not had to produce a therapeutic abortion except in late cases seen in consultation. These patients came to the office once or twice a day for the hypodermic injection and the treatment was troublesome both to the patient and to the office nurse.

In the fall of 1923 I had occasion to treat a few pregnant patients for leucorrhoea, and was surprised to see their nausea disappear. Since then I have noted that these vomiting patients have large boggy, congested cervixes. I have had several patients who were not pregnant but, who had morning sickness, with the same sort of cervix. I treated them the same way. As the condition of the cervix improved the nausea disappeared. Since then I have treated nausea of pregnancy simply and solely by painting the cervix inside and out, with a 2 per cent mercurochrome solution. The treatment is given every other day until relieved, and begun again at any sign of relapse. The improvement begins usually within the first week. In out-of-town cases I have recommended vaginal suppositories of 2 per cent mercurochrome, but I do not believe they

are as efficient as painting the cervix under the guidance of the eye. The only exception to this mode of treatment has been two patients with incarcerated retrodisplaced uteri. In these cases the vomiting ceased when the malposition was corrected, which was done under ethylene anesthesia.

I recognize that in discussing the treatment of so variable a condition as the vomiting of pregnancy, one is apt to be misled by over-enthusiasm, and that the personal equation enters into the treatment very largely. We saw this in the corpus luteum treatment. Some were very enthusiastic over the results, and others saw no benefit whatever. I must confess that my results with it were very satisfactory, although occasionally I got a tender indurated area at the site of injection that persisted for several weeks. There are two facts that convince me that there is merit in the treatment with mercurochrome. First, none of these patients in the past two and a half years has gotten into class two, and second, the patients return for their treatments regularly on the appointed days.

The idea that the seat of the trouble lies in the cervix uteri is not new. I have heard it stated that Marion Sims was wont to paint the cervix with silver nitrate for this condition, but I have been unable to find any mention of it in his published works. However, I found in the *Virginia Medical Journal* for 1858 an extract of a case reported by Dr. Parks³ before the Boston Society for Medical Improvement. "Dr. Parks remarked that he gave the following abstract in consequence of a somewhat similar case reported by Dr. Churchill in the Dublin Quarterly for August last, and which was stated to be, as far as Dr. Churchill knew, the first instance in which nausea of pregnancy had been treated by applications to the cervix uteri." Dr. Parks' case had an erosion of the cervix which he treated with silver nitrate. One application greatly relieved the patient.

Class two, or the severe cases are preferably treated in a hospital. The treatment consists of isolation, some form of glucose therapy, either in the form of a proctoclysis with a 5 per cent solution or, in the very severe cases, intravenously. Titus⁴ recommends giving seventy-five grams in a 25 per cent solution as the first dose, and fifty grams at subsequent

*DeLee, in discussing this subject at the recent meeting of the American Medical Association, said that in some cases where there was some demonstrable nasal infection, relief by the hyperemesis followed treatment of the nasal condition.

doses. He does not think that the use of insulin adds anything to this treatment. Thalhimer,⁵ on the other hand, believes that the patient clears up more quickly when insulin is given hypodermically at the same time the glucose is given intravenously. He gives one unit of insulin to every three grams of glucose, and gives the glucose in a 10 per cent solution injected slowly into the veins. The patient should be kept under the influence of large doses of bromide, thirty to sixty grs. by bowel. Nourishment should be supplied either by rectal or duodenal feeding. When gastric feeding is resumed the food should be as dry as possible. Recently Lehman and Gibson⁶ have recommended 2 per cent solution of sodium chloride in post-operative vomiting. In several cases of hyperemesis gravidarum I was able to give this when the patient promptly vomited plain water. Should no improvement follow this treatment, a therapeutic abortion must be considered. The mistake is often made of delaying the abortion too long.

CONCLUSIONS

Vomiting of pregnancy is associated with increased congestion of the cervix. Treatment of the cervical condition relieves the nausea.

One often sees the same type of nausea in women when they have large, congested cervixes. This same treatment relieves their nausea also.

Treatment of the mild cases and the early cases lessens the number of cases of the more severe type.

The severe type demands energetic hospital treatment, so as to avoid therapeutic abortion.

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Medical Arts Building.

THE FOOD WE EAT: DISEASES RESULTING THEREFROM: RECTIFICATION.*

By FRANK HANCOCK, M. D., Norfolk, Va.

As with every new subject which makes its bid in scientific investigation with certain principles seeming to revolutionize previous conceptions, nutrition is now called upon to explain most of the deficiencies of the human system. It seems fairly able to do so. The effects produced by the absence of vitamins are characteristic and specific for each vitamin. In every case the administration of the missing vitamin relieves the specific condition with a certainty and a rapidity which is one of the most striking and unique phenomena in medicine.

I shall begin with the orthodox trinity, the fat, and two water soluble vitamins. In a deficiency of the first of these we have a failure of processes of growth; greatly reduced resistance to infectious diseases; failure in bone cartilage and tooth development and in calcium metabolism; a tendency to oedema; and lastly, a failure of corneal nutrition. Cellular activity is minimized and out of this reduction comes an increased susceptibility to infection that hastens the end of the experiment—in the case of experimentation with vitamin A. When vitamin A is no longer needed in growth processes, it goes to the glandular elements where cell increase takes such tremendous impetus; sexual power is established; nervous, respiratory and digestive functions become stabilized by a sufficient glandular activity. Pluriglandular deficiency is both of substance and secretion.

A continued absence of water soluble B results in beriberi. Water soluble C deficiency is followed by a swelling and tenderness of the joints; spongy and bleeding gums and loose teeth; swelling and fracture of the ribs.

We will consider the supplementary substances, the mineral salts. J. Boyd Orr believes that in the case of most minerals, both absorption from the intestines and excretion by the kidneys are influenced by the amounts of other minerals present. Hart and Steenback demonstrated that an excess of magnesium interfered with a utilization of calcium, while calcium and phosphorus were mutually dependent upon each other. This is illustrated in rickets, where the two minerals fall together

*Read before the Norfolk County Medical Society, May 25, 1925.

and rise in blood content as the disease recedes—and just in proportion as it recedes. Calcium in other instances performs a similar duality with iron. Without phosphorus all the other food elements are useless. The fertilizer manufacturer is required to state precisely the available amount of phosphorus in his product, but not so the food manufacturer. There is no such balance as this to be obtained, except in Nature's laboratory—that is natural foods neither cooked nor canned (such canning processes as generally obtain today).

Bayliss has shown that catalysts (effecting chemical changes without themselves being effected), *found in natural foods*, are essential to the proper utilization of the mineral salts and also the fats, carbohydrates and proteins. Enzymes produced by friendly bacteria appear to be included in this category. The oxidizing property of sulphuric acid is well known. When this acid is generated in the human body, as it is constantly generated, it is at once neutralized by the alkaline bases which Nature provides for that purpose. Phosphoric acid is generated and neutralized in the same way. Calcium, magnesium and potassium are among those alkaline bases. A few drops of sulphuric acid taken into the body, from a bottle, will produce death by oxidation and destruction of the tissues. When food from which the minerals have been removed by commercial processes, or by cooking, is introduced into the body, free sulphuric acid forms from the albuminoid sulphur, and free phosphoric acid from the many complex phosphorus compounds found normally in meat, cheese, and eggs. These acids, when properly neutralized, appear in the urine as discarded waste products, sulphates and phosphates. When the neutralizing bases have been removed from food before it is consumed, these acids abstract basic elements from living tissues, injuring and destroying them; the alkalinity of the blood is lessened, its power to carry carbon dioxid to the lungs is impaired, the kidneys fail to excrete acid phosphate, and there is an acidosis.

Meat minced and immersed for a few hours in distilled water losses its potassium, magnesium and calcium salts. It becomes colorless, and when cooked is tasteless. If fed to dogs or other animals they will eat it reluctantly, and will die sooner than control animals not fed on anything. Their reserve vital-

ity is used up at a rapid rate through the efforts of their organs to neutralize the sulphuric and phosphoric acids and to throw off the useless and dangerous food elements imposed on them, whereas the animal starved outright dies no faster than the laws of starvation demand. In the case of refined foods, minerals are carried out of the body in life's processes faster than they are taken in. This is particularly true in tuberculosis and other wasting diseases in which the calcium content of the feces exceeds that of the food consumed. It was true of the thousands of children who died last year under ten years of age in the United States.

For a moment I wish to speak of chlorophyll, the hemoglobin of the plant upon which all life depends, manufactured as you know by the vegetable kingdom only in response to the rays of the sun. Prof. Arthur Thompson, experimenting with rats, showed that when kept upon a deficient food they would not exhibit rickets if fed upon the meat of other rats that had been rayed with ultra-violet light. So a food ration deficient in rickets-preventing vitamin, if exposed to ultra-violet rays, becomes adequate and sufficient for a time at least, delaying the fatal issue. This is to show the value in plants and animals of sunlight, transplanted by ultra-violet lamps. Thus ultra-violet light acts prophylactically and curatively.

Mineral salts are electrolytes; colloids have an electrical discharge; enzymes are colloids. All of these agencies—mineral salts, catalysts, enzymes, chlorophylls, violet rays and electricity—are either destroyed by heat, or so altered as to be no longer recognizable as Nature's products—ceasing to operate as our reinforcements, they become our enemies. Leonard Williams, an English scientist, therefore declares that all disease, microbic and metabolic, *is a function of cookery*; and that without the essential representation of raw fruit and vegetables the human race will perish under civilization. It seems to be on the way.

I wish now to discuss the observations and scientific discoveries of Lieut. Col. Robert McCarrison, the English Army Surgeon and scientist, who has spent the last decade among a tribe of primitive people in northern India. He noticed that they had very few, if any, of the civilizational diseases so common among us—appendicitis, cholecystitis, gastro-intestinal

diseases, tuberculosis, colitis, renal and heart diseases, cancer. A long series of experiments upon monkeys leading their wild lives in the Madras jungles, fed with vitamin deficient diets, enabled him to demonstrate that the first effect of food deficient in vitamins was to render the intestinal tract susceptible to invasion by bacterial or protozoal agents. In due time the monkeys he was experimenting on died, or were killed as they were about to die, and the following gross anatomical lesions were found: enlargement of the mesenteric glands; dilatation of the stomach; congestion of the gastro-intestinal tract, with ecchymoses scattered over the peritoneal surfaces—most commonly over the colon; ballooning of various parts of the tract; marked thinning of the muscular walls of the colon, and partial disappearance of its longitudinal bands. Opening the tracts, post mortem ecchymoses and congestion of the stomach were seen, especially around the pylorus; shallow ulcers, shallow down-growths of the epithelium, suggestive of commencing carcinoma of the pyloric region. In the colon there were varying degrees of colitis, sometimes involving the whole viscus. *Colitis was the most marked, and one of the most constant of the morbid anatomical changes present.*

The post mortem findings in the case of the recent President Ebert, of Germany, are in singular accordance with this description. Histologically there was congestion, hemorrhage and atrophy of the muscular coats of the bowel; degenerative changes in the plexus of Auerbach; atrophic, necrotic and inflammatory changes in the mucous membrane of the entire tract, but especially in the colon; *bacterial invasion* of the bowel walls, opening of the portals of entry into the blood stream, and pronounced atrophy of the lymphoid elements of the intestinal mucosa—exactly what happens in marasmus. These changes were practically present in all these animals, but more pronounced in those whose deficiencies of diet included both A and B vitamins.

McCarrison concludes then that vitamin deficiencies in humans result in intestinal stasis; infection of the tract; chronic digestive disturbances with impaired absorption and assimilation of food; mucous disease in children and colitis in adults.

I wish to offer this picture from an article by Cramer (*Lancet*), which shows bacteria

penetrating between two villi at the lower end of the ileum, where the intestinal mucous membrane has atrophied following vitamin A deficiency. They have entered the remotest recesses of Lieberkuhn's crypts. The mucous glands of the cecum have been similarly penetrated. Radium effects the intestines in the same way, only more quickly. The atrophic and necrotic changes affecting the villi, and the resulting invasion of bacteria, are due to a decreased secretion of mucus with atrophy of the mucous cells. In a normally functioning intestine the bacterial and protozoal flora is confined to the center of the intestine, owing to the protective action of the mucus. Mucus probably plays a bio-chemical as well as a mechanical part in the protection of mucous membrane against infection. When the mucus secreting cells become impaired by the absence from the diet of vitamin A, the bacteria and protozoa can be seen to attach themselves to the surface of the villi, to creep down between them into the crypts and to proliferate there. Restoration of vitamin A quickly restores this alteration of the tissues. Daniels, Armstrong and Hutton emphasize the fact that the lack of vitamin A is the specific factor in the development of another disorder which they term para-nasal and mastoid sinusitis—bacterial invasion is permitted.

Dr. Cramer found that the digestion of fats was less complete and rapid in the absence of vitamins from the food, and that the vitamins—especially B—had a definitely stimulant action on the processes of intestinal digestion and absorption.

Investigations by Gross, using synthetic diets deficient in vitamin B, have shown *in vivo* and *in vitro* definite impairment of the motor functions of the entire intestinal tract, and Pappenheimer and Larrimore showed that *gastric lesions* occurred in fifty-five per cent of rats fed on a synthetic diet in which the only deficiency was vitamin A. They found that cod liver oil afforded complete protection against those gastric lesions—no gastrectomies, nor anastomoses were necessary. These authors' rats demonstrated exactly the lesions shown in Fibiger's rats *fed only on white bread*. Vitamin deficiency of lesser degree continued for long periods might cause effects similar to those of greater degree of this deficiency for a shorter time. For instance, many of these cases of mal-nutrition never

reach the terminal stages of beriberi, pellagra or scurvy, but show intermediate stages of nutritional conditions of obscure ill health, so little obvious that they have been overlooked.

W. Cramer, in a long discussion of McCarrison's pioneer work, believed that it would remain, as it is now, incontestable. Cramer believes, and I think this is fairly epochal, that there is no fundamental distinction between specific and non-specific impairments of health due to vitamin deficiency. The so-called specific deficiency diseases are merely the last links in the chain of events, of which the non-specific impairments are the earlier ones; caries of the teeth, osteomalacia, stomach and duodenal ulcers, appendicitis, etc. When vitamins are withheld, the health of the organism at once declines. There is a loss of appetite, constipation, a fall of bodily temperature, a diminished nitrogen retention, an impaired absorption of food, and a progressive atrophy of lymphoid tissue. All of these particular disturbances are specifically remedied by the administration of vitamin B. Vitamin B then has a drug-like specific stimulating action on the functions of the digestive tract. There is an absence of spontaneous infections in vitamin B deficiency, though there may be a complete marasmus.

Vitamin A deficiency is universally accompanied by a disposition to spontaneous infections, commencing in the mucous membranes of the intestinal and respiratory tracts, and in the eye. They are due to a weakening of the local defenses of these tissues represented by the mucus and the tears.

The general humeral defenses of the monkeys experimented on by McCarrison remained unimpaired until long after the local infections were established. The same diminished resistance to local infections had been observed in children in whom xerophthalmia was always accompanied, sometimes preceded, by an infection, usually of the lungs. Therefore, when in badly nourished children general infections occur (do they occur in any other kind of children?), pneumonia, or enteritis, they must be regarded as specific deficiency diseases just as much as the xerophthalmia. In 6,000 children examined at the Forsythe Infirmary, Pallini found eleven per cent free from caries and mal-occlusion. Not one of these children had any infectious disease. Of the other

eighty-nine per cent, all had had one or more of the acute infections.

There is such a thing as vitamin underfeeding, in which there is sufficient vitamin for the animal or child to grow and reproduce, but not sufficient to be productive of full health. This vitamin underfeeding is responsible for many of the ills of pregnancy. How can a prospective mother eating boiled potatoes, white bread, cooked meat, white sugar and pastries be healthy herself, or produce a healthy child?

McCallum, Simmonds, Price, and other researchers state that "Nutrition of the prospective mother is of paramount importance for the welfare of the unborn child, and influences the developing teeth." Experiments of Gladys Hartwell indicate that requirements of vitamin B in lactating animals are greatly in excess of those of non-lactating animals.

PRENATAL: It is estimated that the amount of inorganic salts fixed in the foetus during the last three months of pregnancy is twice as much as during the previous six months. If there is not sufficient calcium to calcify the growing child's teeth it will be taken from the mother's. In the Edinburgh Royal Maternity Ante-natal Clinic ninety-eight per cent of pregnant women suffer from dental caries; fifty-three per cent of these mothers were under twenty-five years of age.

Bone marrow shows an increased liability to bacterial infection upon vitamin deficiency diets, hence the acute infections. There may be at the same time a polynuclear leucocytosis, but there is nevertheless a real fall in the bactericidal power of the blood. *These vitamin and mineral deficiencies provide a nidus for any sort of disease apparently.*

Speaking of intestinal stasis, Sir W. Arbuthnot Lane says that in every case in which he has had an opportunity of verifying it he has found that cancer cases were suffering from chronic intestinal stasis, and that the infection by cancer was an indirect consequence of this condition. He believes that in two generations cancer could be practically eliminated from the human family by return to primitive foods. He says it is the most fatal plague civilization produces, and potentially menaces every adult member of the community. He says, "We know that cancer is the result of the slow poisoning of our bodies under the unnatural conditions which civilization im-

poses on them, and we can prevent it as soon as we can educate civilized people to return to the natural habits and diet of uncivilized people. As it is, intestinal stasis begins in infancy and lasts through all life. As a result, we unknowingly subject our bodies to twenty, thirty, or forty years of chronic irritation and slow poisoning, which sooner or later results in ulcers, appendicitis and cancer. Except in (negligible) chemical cancer it is the poison produced within the body by the stagnant residue of undigested food which produces cancer."

Recently Dr. Chas. Mayo was asked to give his ideas on this subject. He referred to Dr. Frank L. Hoffman as an authority. Dr. Hoffman said that unless the body is in a condition favorable to the development of cancer, the irritating processes which are directly contributing factors are without effect on the system. Furthermore, that some trouble comes from denatured air, more from denatured water, and most from denatured food. In cutting out the manifestation you are merely cutting out the local sore; the condition of the body that permitted this development remains.

Apparently in the interests of health we are wholly to upset our present dietetic practices. Have not these practices upset health? All animals except humans reach an average length of life equal to from ten to fifteen times the length of time it takes them to mature. We average only two or three times our maturing period.

Sixteen million and five hundred thousand of twenty-two million school children in the United States show physical defects of one or another sort. What are they eating? Cooked foods—foods that are denatured, processed, refined, bleached, sifted, demineralized—as decorticated wheat, corn, oats, barley, rice. Forty-one per cent of our drafted men in the World War were rejected because of physical disabilities, and for the same reason—the food they ate. There will come an awakening in this nation against the crime of improperly feeding the youth of the land. It would be well for the medical profession to conduct this crusade.

Cooking brings about an oxidation of the food elements—a conversion of organic minerals into inorganic, which are unassimilable by the human system—a further stewing of

the minerals out of the food into boiling water, which is usually thrown away. And so the children have no lime wherewith to grow their teeth, or to maintain the teeth's integrity. The blood deprived of minerals through food degeneration withdraws lime from the teeth to carry to more vital centers. No tooth ever decayed until the blood stream had been long deficient. We have all been totally unaware of this process until apprised of this food and disease association in the last few years by expert researchers, both within and without the profession. Completely ignorant, we besought the aid of the toothbrush and various dentifrices, and marvelled that teeth continued to decay. The dentists came in great numbers, and are perhaps performing the most important special service rendered the human race today. Animals fed upon food in which any of the minerals have been removed perish! And of the same diseases that kill the 400,000 children that die every year in the United States under ten years of age. Caries of the teeth is merely the most pronounced symptom of deficiency disease resident within the tissues of the child, and is a forerunner of infections and rickets. Thus we fiddle while civilization burns!

Nature provides a weaning period for the young of all animals. Prolongation of lactation is effected in certain domesticated animals. Growing children drink this milk, but they have defective teeth. Other young animals do not drink this milk and have no defective teeth. Consider the artificiality of the milch cows' surroundings, tethered in sunless barns, without exercise, with by-products food largely to live upon. Have the pediatricians ever protested against this inhuman practice, so deleterious to the animal and the child? Is vitamin A of the butter fat likely to be sufficiently energized in such milk; or will the protein so vital to the construction of protoplasm register what it might register in amino-acids? Proteins found in grain, vegetables and uncooked meat are biologically complete, having eighteen amino-acids. Is this the reason why all the herds of cattle examined for eight successive years in the State of New York gave positive tests for tuberculosis—certified herds included? Scientific commissions investigating the subject in this country and in Europe have agreed that ninety per cent of the cervical adenitis in children is of

bovine origin, coming through milk and butter. One certified herd of 250 cattle were found upon examination to have seventy-nine cows with marked evidence of tuberculosis. They were producing milk certified to be free from infection, and the children of New York were drinking it.

It is stated that of a hundred Indian skulls in a Washington Museum there is only one defective tooth among some 6,000 teeth. Every defective tooth shows the folly of denatured foods. The ox gets his proteins from vegetation and grasses. Would not those same proteins be sufficient for us? The primitive tribes of Nigeria and the aborigines of Australia are quite without our most prominent civilizational diseases. Our negroes, not having reached the crest of the wave of high living, have yet something coming to them in a greater prevalence of pyloric, gall-bladder diseases and cancer. Their teeth are beginning to crumble. The first effect of the contact of civilized and primitive races is the introduction of respiratory diseases among the latter. It was said in France during the war that certain Senegalese units died like flies of tuberculosis after being in French camps and eating the white man's food. Seeds, leaves and fruits of the vegetable kingdom contain every element necessary to animal life. If these organic substances are not supplied to the body, deficiency must prevail. Wrong kinds of food do not meet bodily requirements, and in so far do not satisfy the appetite, so too much food is taken in a vain endeavor to supply deficiencies.

In a recent number of *Hygeia* (A. M. A. *Journal*) it is stated that owing to a lessened mortality in the acute infectious diseases there is a real prolongation of average human life, but in the matter of cardio-vascular-renal diseases of middle life the medical profession is making no progress. It stands hopeless and helpless, in complete ignorance of the pitfalls that have barred its progress, while the simple remedy of whole foods as Nature prepares them is waiting, clamoring to be of service. And this misery comes from the material we fancy is food! Less than fifteen years ago a definite relationship was established between disease and the food that makes it possible. The idea has spread slowly, and is still looked upon with incredulity. There has always been

a tendency to accept disease as something that could not be avoided—as belonging inevitably to life. May not bacteria merely make manifest a deficiency we did not know existed?

There are potentially and actually about a million diabetics in the United States, and the number is increasing. In the sugar producing state of Louisiana diabetes increases faster than in any other state. The annual consumption of sugar in the United States is about 150 pounds per person; in Great Britain 30 pounds; in France 28; and in Germany 16. The body develops its own sugar—all it needs, through its own internal mechanism, from natural foods. It is therefore not necessary to use refined sugars. The body can only absorb 1/10 of 1 per cent of its own volume of sugar. The rest we take must become an excess. The stop gap—insulin—will not be needed by a more liberally educated, less ignorant people than we, who will refuse to drug themselves with lethal doses of sugar. A 50 per cent increase in diabetes appears to have been effected in the last generation. The insurance company tables show that old-age-disease deaths have been doubled in thirty years; that 65,000 people are dying annually under forty from arterio-sclerosis, high blood pressure, kidney, brain and digestive diseases; that each year younger and younger men are being attacked by these old-age diseases. In place of old plagues is the organic degeneration—the premature decay.

We must put back daily into the blood stream what the life cells take from it in the process of living. Only through the food we eat, the water we drink, and the air we breathe can this be done. Drugs won't do it. One hundred and forty-five thousand physicians, myriads of dentists, thousands of hospitals and sanatoria, are seeking to atone for this fundamental food inadequacy by treating its end results. Surgeons cut and explore, dentists patch and pull, doctors dose, manipulate and burn, all wondering over the mystic origin of disease.

We must return to the primitive ways. We must have whole wheat, whole corn, whole oats. There must be no bleached, devitalized cereals ready to serve.

All life is co-ordinated function. All disease is altered function called by different names: tuberculosis, cancer, typhoid, etc. They

manifest themselves differently, these diseases, but they have the same origin in the broken defenses of the body through food inadequacy. The germ theory of disease was a step in a certain direction, but only a step. We are now to take the plunge. Healthy living tissue holds germ life in contempt. All the power of invading bacteria is insufficient to wreck us where our defenses have remained intact—the mucus and the tears. We know, because our men of science teach us, that there is scarcely a nidus in our bodies where germs may operate until the artificiality of our lives has lowered the standard of resistance.

Amid the encircling bloom of deficiency diseases, Nature's food is to be the kindly light that is to lead us out.

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THE ALIENIST AND EXPERT TESTIMONY.*

By SUSAN A. PRICE, M. D., Williamsburg, Va.

It is a great pleasure and privilege to attend this meeting. I think it is most important that medical associations meet and be well attended, for the purpose of reading and hearing medical papers, the exchange of ideas and medical experience and results of personal study while in the recent stage. I think it was Dr. Osler, one of the most interesting, considerate and humane of medical writers, who said that medical text books were out of date before printed, so much time, several years, at least, being required to arrange a text book. We know many changes may and do take place from day to day in the theory and practice of medicine, so it seems much in order that medical societies meet while medical experiences are new for exchange of theories and experience. We value medical books but we know well when reading the best, that we may be reading that which is already well out-of-date and that something else may have been discovered or come into use since. New discoveries are being made every day. We may be perhaps just entering an era of medical science. We may ourselves have discovered much of value in our honoured and chosen profession. It was a pleasure to prepare this paper for this meeting, imperfect as it is. I am reminded of a remark accredited to the President of the American Psychiatric

Association at the recent meeting in Richmond, who said that the exchange of ideas was valuable and important, even if the ideas were wrong, so if blunders and errors are apparent in this paper, and I do not doubt that many will be, I will be glad and grateful to have all pointed out.

Alienist is a word I rather hesitate to use, a word exposed to more disparaging comment, regarded with less certain scientific value, often even the vehicle of the "jokesmith" in a laughter-loving and careless age when hardly any serious or scientific subject is absolutely safe from more or less levity and ridicule, than any other word we, as medical practitioners, have occasion to use, or with which we are familiar.

In a way, it may be that psychiatry does stand for the more or less haphazard and fantastic side of medical science if medical science has a haphazard, fantastic or humorous aspect. We know that for untold ages, although the seriousness of mental disease was known and feared, dreaded perhaps as no other disease, yet nothing like the study or attention was given to it as was given to those afflicted with bodily ailments. There always seemed to be a sharp line, imaginary, of course, drawn between bodily diseases and mental troubles. For what were regarded as very obvious reasons, they were seemingly separate and apart, for could not a good mind exist with a poor body, and a good body be host to a poor mind? Many examples can be pointed out in every age of the world.

Mental disease was neglected as such because it was hardly regarded as a disease. No doubt this neglect was furthered and inevitable because bodily sufferers make known their ailments better than those afflicted mentally. Mental sufferers are the last usually to call attention to themselves or to ask for help, more the pity and tragedy, and always serious inroads are made on mental constitutions before coming to the attention of those "who minister to minds diseased."

Mental disease has been even looked upon as a curse or a visitation to be endured in the best way possible, not to be remedied or relieved, and last of all prevented, and few efforts, futile if any were made, were put forth to solve the mystery of insanity. It was considered beyond the power of human effort

*Read before the meeting of the Walter Reed Medical Society, at Williamsburg, Virginia, May, 1925.

or skill. Once any serious move to discover the problem of the insane would have been received with about as much confidence and enthusiasm as the plan of Christopher Columbus was received when he decided to set out to discover America. It was something that seemed impossible, yet Columbus and other great discoverers have had true visions. May not the alienist have a true vision of discovering the secret of the mentally diseased, a secret of many bygone ages, and also of discovering the remedy?

Dealing, as psychiatry does, with so much that is grotesque, and partaking of the burlesque in human behavior, the uncertainties and deformities of the mind, the mere imitation of which often tends to excite mirth and laughter, is perhaps one reason the alienist does not seem to be taken very seriously. He is exposed to many diverse opinions, as many opinions as he may have cases to deal with, and his ability to explain and analyze these fantastic mental deformities is often questioned. There are many different ideas and conclusions often at wide variance as to cause, diagnosis, treatment and prognosis. Each case presents different aspects and, in spite of all the seriousness and the main cause of far reaching disaster and the vital importance of the status of mentality and its bearing on the welfare of the world, the fact remains that the alienist is often the butt, good natured though it may be, of the public at large. We are all acquainted with the light-hearted railery at the expense of the alienist. Only recently at the meeting of the American Psychiatric Association in Richmond, the joke on the alienist was among those creeping in on a most serious discussion of a psychotic subject. A speaker of wide influence and experience in mental disease enlivened the occasion by telling of a witness called to give expert testimony who had been asked the inevitable question what an alienist was, or words to that effect, and who was also asked if he called himself an alienist. Oh, yes, he was an alienist. What was the definition of an alienist? An alienist was an alienist, but when asked for more specific information he replied that his definition of an alienist was America for Americans; and then he left the stand.

Alienist is a word to be used rather cautiously and carefully if one does not wish to be subjected to rather embarrassing examina-

tion at times. Alien means strange; an alienist is one who studies the strange or foreign and is a good word, as words go, made up as words often are in a very incomprehensible way. There are certain words that seem doomed to oblivion, sooner or later to share the fate of the character of Shakespeare's fancy who was "done to death by slanderous tongues." Alienist may be one of those words. More respect and serious consideration should be given the alienist's efforts when he is called upon for expert opinion. It is coming to be an almost every day occurrence that the alienist is called in when the question of sanity or insanity comes up in criminal court cases or in any court case where there is a question involving the mental condition of a person at the time he committed an offense. A difference of opinion may exist between the two sides of the question and a battle of words and technical phrases ensues presenting a confusing spectacle to onlookers. Opposing alienists give expert opinions about the same person, apparently using the same words and technical terms with the same meaning, but results are very different and the question may come up as to what expert testimony is? Is there such a thing as an expert in insanity; of what use is an expert in the courts; what real influence has an expert on the mental condition of criminals or those being examined; who is qualified to be an expert? What class of cases should come in the hands of the expert for analysis and to what lengths should expert testimony extend? What are the limits of inquiry into the mental condition of a person and to what depths shall judgment extend? Perhaps there is no more thankless or unsatisfactory task or experience than serving as an insanity expert in court, when we consider what an extraordinary state mentality is, consisting as it does of a "confused, chaotic mass," kept in order only by will, training, custom, or as is often tried with varying success, compulsion. A healthy mind is a condition of equilibrium or balance. It really seems it should be an easier matter than it now appears to distinguish the unbalanced mind from the well-balanced mind.

Expert is a small, insignificant word with a large and significant meaning. It has been said that an expert is not one able to "elucidate the mysterious, but one able to appreciate the significance of the obvious," and this ap-

plies most aptly when one is analyzing the mentality of the insane or the mentally deficient, the appreciation of the significance of the obvious not the elucidation of the mysterious. I have heard an illustration given of an expert, may be an agricultural expert, familiar in the ways of the earth, working in the ground he has known all his life, yet it may be stated that no agriculturalist ever has or ever will be able to predict exactly what even one acre of ground is capable of producing.

Expert knowledge is very limited everywhere, even in the most well-known surroundings. No approach can be made to solving the mysteries that are about us all the time. We may hear and speak of those who have spent perhaps the best part of their lives in the study and observation of the mentally defective, yet no one, though constantly at work in his particular line, will ever fathom the vagaries or causes of the vagaries of the mind. Alienist has become a word almost synonymous with court trials. We use the word quite frequently to be sure, but we find the word most probably used in connection with expert testimony, which every year seems to be coming more to the front and into public notice and the services of the alienist are being frequently sought for expert analysis of the minds of those with criminal tendencies. Now there are many men these days (we hear of few women) who have attracted wide attention as alienists at large; alienist seems to be associated more peculiarly with men than most any other medical term; and in these days of equal rights and privileges that is in itself interesting. Still a remnant of mystery or superstition clings to the person bereft of his mind. Even in these days when much has been added to women, rights and privileges in scientific research are also now enjoyed equally by men and women, the deepest insight into the workings of the mind, and the key to the peculiarities of the psychic, the almost unapproachable in medicine, and what has been called by the old negro preacher, "the unscriving of the unscrutable," is still retained largely in the keeping of our medical men. We cannot easily break away from the old established ideas of the mysterious workings of the mind and we can readily understand what a difficult matter it is to attempt to explain vagaries of action that control

thought or action, or to explain the vagaries of conduct, yet the alienist is often asked what in his opinion was the state of a certain mind at a certain time or stage in a man's life. Was he sane or insane when a certain act was committed? Should any one attempt to make a statement in reply, only to have his evidence publicly attacked, argued over, statements and ideas, and even motives questioned and perhaps ridiculed? As far as the alienist's bearing on the outcome of the case is concerned he had better not have been called upon to testify.

We speak of difficult and obscure cases, supposedly out-of-the-ordinary, but which seem to be becoming all too numerous. Any one is able to make a diagnosis of the frank or gross type of mental disease. It is the complicated type that requires fine points of diagnosis and analysis to be made. In the present state of society there is so much universal confusion, often ignorance and impatience, exhibited in regard to mental disease, it is difficult for the alienist to get the proper support and hearing, when a case presents obscure and difficult points for analysis, to make his testimony in court of real value and significance. The alienist giving expert testimony in court has a very different position to fill than the surgeon who gives expert opinion as to the condition of a broken leg, a fractured nose or fracture of the skull, when he is expected to give an expert opinion as to the condition of the mind. However, he should be able to command the same respect and hearing as any reputable surgeon, oculist, or general practitioner testifying as to the bodily condition of persons in question. We know the alienist now enjoys no such privilege. We have only to follow the proceedings or press reports of some notorious court case in which the alienist figures, to have an idea of the ordeal to which the alienist is exposed. It is in court that the alienist is most often heard about and exploited, to use a rather sinister word, and exposed to the peoples' judgment. In court he faces a judge and jury, a more or less critical public, often a rather merciless press, and worst of all, perhaps, opposing alienists, expert in the same subject, but with different viewpoints, different objectives and become, so to speak, "the enemy in his own household." Under these circumstances the alienist may find himself at the end of an imperfect day in court, alone with his ideas, conclusions and state-

ments and a victim of divergent opinions and cross-examination, so often complicated by the use of many words, phrases and technical terms not in general use and meaningless to those conducting the case. He may have heard the court declare his testimony of little value in the case and so instruct. This may happen to any alienist, no matter how competent. It has happened often in the past few years, and will continue to happen unless some more exact plan is adopted for the alienist to follow when giving testimony on conditions of the mind.

We have a demonstration now and then attracting nation-wide attention and morbid interest and curiosity to revolting crimes and actions that could have been conceived and carried out only by a diseased mind. Yet the alienist perhaps fought a losing battle in trying to convince persons, who, for various reasons, thought differently. Analysis of the state of mind of persons who have committed crime, or who have been exposed to court trials is rather modern action, we might say an experiment. Ideas as old as crime itself have been held that heinous, grave, serious and unusual actions were committed by people in their proper minds, even murder, as far back as Cain and the first murder, and the criminal has been tried by law and often sentenced and punished. The enlightenment and advance of civilization has caused more thought and study of the processes of the mind, and research and investigation into causes of human conduct is being carried on. There is now a tendency to more humane judgment in the cases of social offenders than the former strict adherence to the old rule, "an eye for an eye, and a tooth for a tooth," permitted.

In line with many departures from established customs the difficulties of the alienist in court have been manifold. No subject may present such a variety of opinions as to what constitutes a normal state of mind. Can one ever become expert enough in the devious and labyrinthine turnings and twistings of the realms of thought to meet the endless questions that arise when an attempt is made to explain the usual human behavior known as sanity, or the deviation from established rules of human conduct known as insanity? We speak of a difficult case when a contest of judgment arises and when dissatisfaction and criticism come over the question of sanity or insanity in an individual, or the probable state of a

person's mind in the past and the bearing this state may have had on his actions or emotions at a later time. We may well appreciate the difficulties encountered in giving expert opinion touching the extraordinary processes involved in a mind's activities, and yet this opinion is being sought, expert testimony being given and the ends accomplished in a way. Of course it does not require the services of an expert in mental diseases to analyze or demonstrate actions of an imbecile, or an idiot, or the members of that large and ever growing class of mental deficient known as morons. Moron is a word derived from a Greek word meaning foolish, the adult with the intelligence and judgment of a child. There are morons of many degrees and members of this type of mental deficient are constantly filling up the ranks of criminal offenders. It is very important and it should not be difficult to identify the moron, especially if any record is at hand of previous life and activities. The layman may soon come to know this type of offender well, who is becoming far too familiar to us all.

A well-known lawyer of Chicago, recently active in the case of two young criminals of the homicidal type and a case in which alienists were brought into much prominence, made the statement that the modern criminal trial need last only a very short while, a decision being speedily reached. The resulting sentence often shows how apparent the final decision was from the first. We may wonder at hearing such a statement from an authority in crime. We are apt to think that a criminal case may be drawn out almost indefinitely, with so much divergent opinion often leading such a devious course.

We ourselves often are surprised and wonder how so much argument can arise over the state of person's mind, when it appears so plain that mental defect exists. The state of a criminal's mind may resemble the will-o'-the-wisp of judicial sentence. We are familiar with the brain substance as seen after death, a lifeless solidified mass or object with various lines and subdivisions resembling sponge matter, but it has been almost demonstrated that during life the brain is more or less in a fluid state, perhaps constantly in motion, ideas flowing and eddying like tidal waves, as the ocean tides mysteriously ebb and flow, subject to some fixed law of nature. We can conjecture

that our thoughts and emotions are also subject to fixed rules governing human conduct, the great plan of thought and action depending upon nerve stability, and, in a measure training. Our thoughts are beyond control, differing in this respect very much from our actions, which should be and are controllable by well-balanced people. Thought is sanity, action may become insanity. We are all conscious of harbouring impossible thoughts that throng our minds, wildest of wild ideas, perhaps, and impossible of being carried out, for sanity depends on action and not giving way to wild ideas. An interesting statement has been made that no set of thoughts or ideas can occupy a place in our minds and be in full control longer than thirty seconds at a time. Other ideas and thoughts take their place and dominate for a short time, so the sanest person may be host to most insane ideas, but he keeps control of his actions and is master of his mind and his actions. This reasoning constitutes sanity, so it would seem to be a relatively simple process for an alienist to be able to put in understandable words the mental status or condition of a person on trial as he sees it so that a jury of twelve could easily understand what he is talking about and what he wants them to know. The time may come when a person who has committed murder, assault, arson, theft, forgery, adultery, maiming, practiced prostitution, is a victim of drunkenness or shows any lack of regard for the well-known laws and rules for order, will be called insane, whether of a chronic or temporary nature may be left for the court to decide. The alienist has made his statement, leaving no room for argument, cross-examination or views of opposing alienists.

We may make this statement. Why? Because the insane do all these offenses and will continue to do them; these are insane actions; every known crime is committed by the insane. Do away with insanity and crime will be done away with. The tendency to crime seems to be inherent. How else can we explain the continual recruiting of the ranks of criminals and offenders that goes on from age to age? Why are laws continually being made and continually being violated? Why is it that a law once made is always a law and must continue to be a law, instead of an accepted custom. There can be no letting up, for even the very oldest laws are the laws most frequently

broken. Law breakers are always about, because there are minds that can not regard or understand the meaning and necessity of laws. We may take a look at war, wholesale disaster resembling lunacy in all its phases, instigated by those who have characteristics invariably present in the most dangerous and insidious forms of insanity. We look back to the history of war and what led up to wars and invariably the trail leads to strange company; persons of faulty heredity occupying positions of power; monarchs possessed with desire for gain, but with just as much desire for that most fleeting and sinister quality, power; ideas of grandeur and display; insane desires to rise and rule, regardless of what may happen. We recall the sad spectacle of young men who emerged from the late war with nerves shattered, minds destroyed and the many causes promulgated for this wretched state of affairs. How could these young men enter the war apparently sound and emerge in such sad condition mentally? May not these young men have only run true to form in carrying out the general madness all about them? If the world truly desires to be free from the repetition of the madness and insanity of war, as well as from other crimes and offenses against the peace and security of the world, the expert alienist must come more and more to the front in peace and war deliberations and analyses of the meaning and processes of human behavior and be able to voice his findings in no uncertain terms. We live in an era of psychology, the study and science of human behavior. In schools and colleges it is an important study and in all branches of learning it has an important place. The alienist, as an expert in his subject, should be able to tell in language understandable and good for ordinary practical purposes, what intelligence is and its uses; nature's gift, a gift that may, as a gifted writer says, "be lost by accident, disease, neglect and misuse. We may not all be expert enough so that after "fifteen minutes' interview with a person we will be able to give the measure of his intelligence," but the alienist should be regarded as a master of his subject and he should so impress those who may look to him for opinion and advice. In a recent issue of a current magazine there is an article of much interest on the subject of psychiatry in the courts that shows a hopeful sign that the expert alienist will in time have

a real place of power and usefulness in all the courts of the land. He surely needs such a place, so that in court trials in the future, when having expert testimony as a part of the conduct and taking a part in the final outcome of the trial, the proceedings may be free from the anomalies and surprises that confront us now when expert testimony is given in a court case.

SINUSITIS—DIAGNOSIS AND TREATMENT.*

By G. B. TRIBLE, M. D., F. A. C. S., Washington, D. C.

The embryological and anatomical features of the sinuses are the determining factors in the diagnosis and treatment of their pathologic conditions. Grossly, they may be divided into a group with gravity drainage and another without gravity drainage, and the development or lack of development of the normal pneumatization has a great influence in the course of any infection. Experimental work with animals has shown the great influence of proper nutrition and nutritive agents in sinus development. Reviewing for a moment the anatomy, we find, in the case of the frontal sinus, a development in various ways: by a direct extension of the whole recessus frontalis, or from one of the anterior groups of ethmoid cells having their origin in the frontal furrows. This sinus is represented in its rudimentary state early in infancy, though not necessarily in its frontal location, but having its future drainage determined by its embryological type. If the development is from an anterior ethmoid cell, there is a true naso-frontal duct; if by direct extension from the recess, there is no true duct. It frequently varies on the two sides in the same individual; in adult life it may be divided by septa: its floor may be encroached upon by the bulla, occasionally absent, but not infrequently found in the vertical portion of the bone. One can readily understand the unsatisfactory operative field this presents, so much so that the pendulum in the Viennese Clinics has again swung to the older radical mutilating operations with no attempt to preserve a supporting bridge. The nasal frontal duct is even more variable in its anatomy, and probing it successfully is rather more rare than is commonly supposed.

Maxillary: This sinus develops early as a slit-like indentation in the nasal lateral wall, gradually hollowing out the maxillary bone, and limited by the close proximity of the alveolar process to the orbit. By this same consideration, the inferior nasal meatus is not in direct contact with the infantile maxillary sinus until after eight years of age. This is to be borne in mind in exploratory punctures in children, or the antral cavity may be entirely missed and the cheek penetrated. Further than that, the danger of injury to the tooth buds must be remembered, and the narrow transverse diameter must be borne in mind in both external and intra-nasal operations. The most common fallacy in the adult sinus is the belief that the canine is in relation to the antral floor, the first pre-molar, and to a greater extent, the second pre-molar, but according to Schaeffer, the molars are the most intimately in contact. Compartments formed by ridges are frequently found, interfering with drainage. Infections of dental origin are commonly given as from 20 per cent to 30 per cent of antrum infections. Probably in private work, the percentage will depend upon the character of referred practice.

Dehiscences of the bony walls are not unusual, particularly in diseased conditions in any of the sinuses. For the reason that the normal ostium is high, needle puncture and washing will bring out pus after apparatus like the Sorensen or Coffin sinus suction has failed, and must be used in treatment and diagnosis. The sphenoid and posterior ethmoids were, prior to the anatomical studies of Zuckerkandl, not considered surgically accessible, but following the leadership of Hajek, a line of operative procedure was built up that has stood the test of time and is the basis of Sluder's intra-nasal work. To Sluder belongs the credit of bringing before the medical profession the associated conditions, due to the anatomical relationship of the sinuses. In the case of the sphenoid, developing relatively early, assuming sufficient size by the end of the second or third year to be surgically important, with its ostium high, varying from 2 mm. to 5.5 mm. from the cribriform plate, retaining secretions, or subject to inflammatory changes in its mucosa or bony walls, giving rise to widespread nerve disturbance, the surgical importance cannot be over-emphasized. With wider pneumatization in the

*Read before the District of Columbia Medical Society, November, 1923.

adult, the contents of the sphenoidal fissure, the ophthalmic, oculomotor, trochlear and abducens, with a possible involvement of the foramen rotundum with the maxillary, or the foramen ovale with the mandibular, but especially important is its relationship to the optic nerve, which may even be contained in its cavity. With a hollowing out of the body of the bone, the vidian canal is exposed and the vidian nerve is practically in the sinus, or protected by the thinnest layer of bone, and subject to any of the inflammatory changes common to the nasal chambers. Directly in contact with the inferior surface of the body of the sphenoid is the sphenopalatine fossa, containing Meckel's ganglion. Surrounding the sphenoid and in close contact with it is the dural cavernous sinus; above it the pituitary. Structurally, the anterior surface is thinnest in the upper portion near the cribriform, heavier toward the floor, frequently unequally divided, incomplete septa forming partially closed chambers and extending often as diverticula into the greater and lesser wings, presenting occasional dehiscences of the wall, so that its mucosa comes in direct contact with the dura. The relationship of the optic nerve and commissure early attracted attention to the sphenoid and posterior ethmoids. In its course the average length of the nerve is 32 mm. to 55 mm., according to Schaeffer, with 25 mm. to 40 mm. intra-orbital, the remaining portion in relation to the posterior ethmoids and sphenoid sinuses.

In considering the ethmoid cells, the variations of anatomy are so striking that it can readily be seen there is no type. This is common with other organs undergoing involution. Developing as extensions of the nasal mucosa from middle, superior, and supreme nasal meatuses, and found early in fetal life, there is no uniformity of development, and each cell communicates with the meatus from which it arises. In general two groups can be distinguished, an anterior group developing from cells below the attachment of the middle turbinate, and the posterior group from above the line of conchal attachment. In addition, there is a so-called middle group, classed by Schaeffer as in the anterior group, which later is found as the bullar cells.

The posterior ethmoid cells may pneumatize the supra-orbital plate of the frontal, or the

infra-orbital plate of the superior maxillary, or extend backward into the sphenoid.

In the adult, there are even more wide variations, ethmoid-frontal, ethmoid-lacrimal, ethmo-palatine, or extension to the middle turbinate. Surgically one of the most common findings is an extension of the anterior ethmoid cells into the floor of the frontal sinus, giving the so-called frontal bulla. Dehiscence in the bony wall, in common with the other sinuses, may be embryological in origin, or as a result of a rarefying osteitis, and a meningeal infection, may result from contiguity. Posterior development of the ethmoid cells may so encroach upon the sphenoid that the optic nerve may be surrounded by post-ethmoid cells, and other cases may be so arranged that the sphenopalatine ganglion may be in contact with the post-ethmoid cells. Infundibulum cells extend often into the agger nasi, and even into the inferior concha.

Experience has taught that a polysinusitis, rather than involvement of a single sinus, is the rule, the exception being the ascending antral infections from alveolar apical abscesses, usually involvement from direct extension.

Sinusitis is widespread. The simple looking coryza that does not clean up, the neuralgias around the face, neck, and shoulder, should all be danger signals. Skillern quotes Gradenigo as giving positive autopsy findings of 22 per cent in 203 post-mortems, regardless of causes of death; Harke 34.5 per cent in 146; Oppekofer 47 per cent in 200 cases; while in death from influenza and pneumonia it ran higher. In the great clinic of Chiari, using the older technique, in the presence of macroscopic free pus, granulations, or polypi, 2 per cent of cases were given as sinusitis. The bacterial findings are chiefly streptococci, viridans and hemolyticus, staphylococci, influenza bacilli or pneumococci, but any organism that invades or finds a suitable habitat in the mouth, nose, throat, or upper respiratory tract may be found in the nasal accessory sinuses. Pearce, of Boston, in autopsies on seventy-five children dying of diphtheria, got positive sinus cultures from every case. This simply tends to confirm what is found in other portions of the body, that there is no sharp limit or boundary for bacterial invasion. Clinically, we may divide the types of sinusitis into:

1. Catarrhal, (a) acute, and (b) chronic
2. Suppurative (a) acute, and (b) chronic
3. Hyperplastic

4. Atrophic
5. Vacuum
6. Mucocoele
7. Luetic
8. Malignant

And to these may be added a type or complication of other types, an osteitis or osteomyelitis of the sinus walls, due to their paucity of protection.

The symptoms presented depend upon several factors; the sinus being chiefly involved, gives the predominant tone or color. The acuity or chronicity of the infection, the question of the general physical condition and mental make-up of the patient, for instance, childhood and the nutritional factors continually associated with that period, influence, markedly, the condition.

Subjective symptoms cannot be relied upon to establish a diagnosis, but taken in conjunction with the local findings, trans-illumination, and X-ray, offer a deal of help, for the one great complaint of almost universal prevalence at some time or another in sinusitis is headache. Headache may or may not be definite in its location. Skillern has given certain areas as being relatively characteristic, over the brow, indicative of maxillary or frontal suppuration, frontal headache from frontal sinusitis of a chronic type, vertex pain from the sphenoid and ethmoid, pain in the occiput from the sphenoid. In this connection, it is interesting to note that with the use of the suction apparatus, and the production of a negative nasal pressure, there is more often a complaint of occipital pain than any other. Next in frequency is pain above and behind the eye. Since more than one sinus is usually involved, any combination or variation may be encountered, and confusion will occur if localization by means of direct pain is attempted.

Sinus headaches, in general, are distinguished from those of ocular origin, due to refractive errors, by their independence of eye use, by their tendency to be worse in the morning and gradually wear off during the day. This characteristic depends upon the drainage being established, or the approaches to the ostia becoming less congested by moving about, or assuming the erect or semi-erect position.

Eye headaches are frequently frontal, clear up on eye rest, unless, of course, due to some inflammatory condition such as iritis, iridocyclitis, or glaucoma. Change of position, such

as bending forward, aggravates a sinus headache. Ewing's sign, pain on making pressure over the site of the insertion of the superior oblique, is a diagnostic point, and indicates an inflammation of the frontal sinus, and is caused by an extension to the periosteum at the insertion of the pulley.

Skillern gives as causes of headache, common to sinus disease, the following:

- a. Swelling of the mucosa, with nerve pressure.
- b. Direct contact of the swollen mucosa.
- c. Negative pressure in the sinus.
- d. Ulceration of the mucosa, with nerve involvement.
- e. Absorption of toxins.
- f. Disturbance in the blood and lymph circulation at the base of the skull.

Among the moot question of this phase of rhinology is the Sluder syndrome or symptom complex—pain down the neck and arm. Sluder's idea is that both headaches and neuralgias are evidence of peripheral nerve irritation. We should remember especially the anatomy of the sphenoid, and the sphenopalatine ganglion, a trunk lying practically in a paranasal cell, sub-mucously or nearly so, and exposed to all the nasal and sinus influences, good or evil.

The intimate eye relationship, with the sinus, was first stressed by Ewing and Sluder, and the line of demarcation between true eye conditions and those of nasal or paranasal origin has become shadowy indeed. When one considers that the eye, in toto, is surrounded on three sides by paranasal cells, often with pneumatization advanced far into the maxillary and frontal, nearly completely surrounded, and has in addition the optic nerve and its vessels against the wall of a cell or actually in one for a third of their length, its chance of escape is rather slight. The most simple form of transmission is by contiguity. It may be evidenced as an openly inflammatory reaction, from the extension of suppurative or necrotic processes, showing up in the orbit as a cellulitis, or orbital abscess.

Pressure on the optic nerve and impairment of the circulation in its passage along the side of the sphenoid or post-ethmoid as a result of inflammatory exudate, disturbance of ocular motility and displacements of the globe can all result from sinus disease. Muscle imbalance may be due to inflammatory changes in

the bone at the ocular muscle insertions, as well as from the absorption of toxins. Visual field changes, with no definite ophthalmoscopic picture, may have their source in the paranasal cells.

General symptoms in relation to sinus disease have not been well worked out. Mental irritability and instability have been thought more or less characteristic, perhaps due to a neurosis from neglected symptoms.

Gastric and gastro-intestinal disturbances from swallowed pus from pharyngeal wall drainage of the posterior group may occur.

Objective symptoms vary with the clinical type, and should be checked by radiograph, for a proper anatomical study if for no other reason. The acute and chronic catarrhal conditions will show merely a nasal hyper-secretion, difficult to distinguish from an acute rhinitis or hypertrophic rhinitis, and not necessary so to do, for usually they are analogous conditions,—no free pus, no pus on aspiration, negative transillumination in a typical case, negative radiograph, and response to cleansing the nasal mucosa, attention to diet, exercise and dress, and mild astringent, antiseptic tamponing.

Suppurative sinusitis, acute, offering relatively no difficulty in diagnosis, patient sick, mild leucocytosis, unless complicated, may be almost fulminating in its course. It depends for severity upon the infective organism. Pus is foul in infections from dental origin. The speculum and head light show free pus, but need a non-yellow light of high intensity, such as the Leitz Midget arc, or Spencer microscope lamp. Pain over affected sinuses and local signs of inflammation usually clear on rest in bed, suction, followed by irrigation to remove secretions, and then tamponing with antiseptics, or the use of the Arbuckle syringe, filling the recesses beneath the turbinates with 1 per cent or 2 per cent mercurochrome. Transillumination shows dark areas, and X-ray shows partial or complete opacity, more likely partial, for X-ray changes are not necessarily due to pus or fluid, but more often to bony changes. If uncomplicated, healing is rapid. If drainage cannot be established by medicinal therapy, surgical intervention is needed, depending upon the sinus. In the antrum, a pre-turbinal opening is made, followed by lavage through a eustachian catheter, or Killian canula. In case of the upper sinus

group, resection of the anterior end of the middle turbinate is used, and external operations only if constitutional symptoms are marked.

Chronic suppurative sinusitis is a sign that both nature and man's efforts have failed. Drainage has not taken place freely enough, changes have occurred in the mucosa and the bone, and surgical treatment is the rule.

Radiographs are here invaluable, and cannot be replaced or substituted by transillumination. The original infective agents have often been replaced by secondary infections, and microscopic findings are not much to be relied upon.

For anatomical relationship, when the financial resources of the patient are limited, an anterior-posterior view will usually suffice, and is preferred. W. B. C. is of relatively little value. Usually a secondary anemia, pain, headache, frequent eye manifestations, and the transillumination and radiograph findings make the diagnostic picture.

Operative interference is here necessary, and usually of a radical nature, for the antrum, the Luc-Caldwell or one of its modifications, bearing in mind the danger of devitalizing two or more teeth. In case of the frontal, a Killian, Coakley, Lynch, or modification is used attempting to preserve the facial symmetry. If only sphenoids or ethmoids are involved, the intra-nasal operation of Sluder affords the safest procedure.

The hyperplastic type is associated with a hyperplastic rhinitis, polypoid degeneration is frequent. Grossly, there is a choking of the upper nares, from the middle turbinate upward. Mucosa shows a condition similar to that in hay fever. While no macroscopic pus may be noted, microscopic pus is found, and it is here that extremely good illumination is essential, and the use of the Leitz arc lamp, with its carbons, or the Spencer microscope lamp, is invaluable. It is termed hyperplastic rhinosinusitis by Beck. It can offer great trouble in diagnosis, and is of great importance in the sphenoid and posterior ethmoids. The inflammatory processes involve the nerve trunks, and give the referred pain and neuralgias. They show relatively little to the usual head light and speculum examination.

The high power arc lamp, and the use of the naso-pharyngoscope are here essential, and a Wappler invention with a straight trocar and

cannula enable an intra-antral inspection as well.

Hyperplastic inflammatory changes account for the failure to relieve symptoms by surgical intervention in the posterior, ethmoid and sphenoid sinuses. Small areas of edematous tissue cause nerve disturbance which does not stop when the sphenopalatine ganglion is cocaineized, for the pain arises in the sphenoid and the ganglion is peripheral to the seat of the pain.

Profuse intermittent discharge of a watery character simulating hay fever is frequently found in these cases. Treatment requires the greatest patience and is combined medical and surgical. Resection of the middle turbinate and opening and draining the sphenoid and posterior ethmoids is frequently resorted to. General systemic treatment is always necessary and the possibility of an anaphylaxis is not to be overlooked, as a contributory factor. The usual local medicinal measures, cleansing solutions of an alkaline, non-irritating character, pressure massage of the inferior turbinates, packing and occasional linear cauterization of the inferior turbinates, or a shearing away of the redundant tissue of the lower border, are all, at times, indicated.

Atrophic rhinitis and rhinosinusitis is characterized by an atrophy of the mucosa, a rarefaction of the bones of the turbinates, especially the lower, and is by some authorities, presumed to have its origin as a sinusitis, particularly of the antrum. Treatment has not been of a highly successful nature in the true cases. The ethmoids and antrum are chiefly involved and after the use of iodine-glycerine or ichthyol-glycerine tampons, mercurochrome irrigations and packing, some surgical attempt is usually made to clear out the affected sinuses and reduce the gaping apertures caused by the atrophy of the mucosa. These cases complain of an inability to breathe freely and this is theoretically due to the layer of stagnant air along the sides of the nares, the current being confined to the middle. The impression of the patient is that there is an obstruction, whereas, in fact, the aperture is much larger than normal and by glatzel mirror, it can be shown that he expels a tremendous blast. Surgically, an attempt is made to clear out the diseased tissue of the antrum and ethmoids and bring the freshened edge of the inferior turbinate over to a freshened area along the septum and se-

cure it there by heavy suture. This tends to do away with the diseased areas, make free drainage into the antrum and reduce, at the same time, the widened channels.

Vacuum sinusitis affects the frontal, is influenced a great deal by a high narrow nose, high palatal arch, enlargement of the middle turbinates, or an engorgement of the mucosa of the superior meatus. The normal ventilation of the ostia is interfered with and vacuum headaches arise. In this connection, the rarity of true sinusitis among the negroes may be noted, polypoid degenerations are sometimes found, luetic bone changes are common, but a true sinusitis is rare. This is probably due to their facility of ventilation and drainage with their low noses and rather wide chambers, certainly not due to their freedom from affections of the upper respiratory tract. In the vacuum cases, correction of septal deflections, fracturing the middle turbinate toward the septum, or removal of its anterior end, is usually successful. Preliminary to shrinking with weak cocaine and adrenalin solutions, the application of astringents should be attempted and will usually afford, at least, a temporary relief.

Mucocele is characterized by slow progress and little pain, due to closure of the natural drainage channels and accumulation of secretions, and it affects usually the frontal and ethmoid cells. It may undergo secondary affection and by absorption of the watery elements has been reported as becoming as more or less solid or caseous. This condition can best be diagnosed by the X-rays. When the large cell with thin walls will attract immediate attention, relief is, of course, by surgical measures.

Luetic involvement is protean in character, affects the sinuses as well as the other parts of the body. It is characterized as usual by an obliterating endarteritis and a rarefying osteitis. Operative exposure may show thin crumbling sinus walls or absence of bony structure over large areas. It yields in a syphilitic phase to the usual treatment and the local condition is handled symptomatically, depending entirely upon the type of sinusitis it simulates.

Malignant diseases of the sinuses are relatively rare, probably the most commonly found is involvement of the antrum, arising from an irritative focus around an infected tooth socket but may arise *de novo*. There is often a per-

sistent dental neuralgia, sometimes a first and always a most distressing symptom, and one which has led to grave errors in diagnosis until irreparable damage has been done. The treatment is that of malignancy elsewhere, modified by the anatomical relationships peculiar to the region involved.

In any of the suppurative conditions, there may arise an osteomyelitis, from direct extension of the infection to the bony walls. It may follow surgical intervention, with the necessary breaking down of the natural protective barriers. Particularly is this true in the case of the frontal where the periosteum has been stripped from the bone extensively. This is one of the advantages of the Lynch operation, and also of Coakley's modification of the Killian. Treatment of osteomyelitis is the same as in other regions,—removal of the dead bone, free drainage and attention to the general health. The question of vaccine therapy in suppurations of the paranasal cells has been, by the majority, answered in the negative; that is, no particular value has been found. As a means of raising the resistance and increasing the bactericidal power of the blood, there are circumstances in which it is advisable, but the low index of absorption from the sinuses is well-known and probably accounts for the relative rarity of systemic infections from sinus suppurations. Large collections of pus are found that have been known to exist for years with but little deterioration in the general health.

Prophylaxis, in general a mild preventive treatment, should be taught all patients with upper respiratory afflictions and a first great point is avoiding the unnecessary blowing of the nose, particularly when both sides are held. It is rather pathetic to see the young mother's pride in her offspring's vigorous nose-blowing. It is simply spreading infection to the sinuses and ears. The next is a question of douching and insufflation from the hand as carried out by the average patient. Does it do good or do harm? Probably harm. It can do but little possible good. The next point is the great desirability of the surgical removal of all obstructions, and making an attempt to equalize the ventilation of the nasal chambers.

Co-operation with the dental profession in advising the regular inspection and prophylactic treatment of the teeth and surgical re-

moval of those showing apical absorption in the contiguous antral area will cut down the number of antrum infections of dental origin.
1026 Sixteenth Street, N. W.

Proceedings of Societies

The Southside Virginia Medical Association

Met in Petersburg on Tuesday, September the 8th, with the largest attendance of its history. Dr. H. M. Snead, of South Hill, presided. A splendid program had been arranged, three of the most interesting features being a discussion of Birth Control by Dr. W. A. Plecker, State Registrar of Vital Statistics, an X-ray motion picture demonstration of the Gastric Motor Phenomena by Dr. Wright Clarkson of Petersburg, and an X-ray and motion picture demonstration of the activities of the Bronchoscopic Clinic of Philadelphia by Dr. L. H. Clerf, associate of Dr. Chevalier Jackson.

Dr. H. M. Snead, South Hill, was appointed delegate from the Association to the Richmond meeting of the State Society.

After the meeting, the visiting doctors were given a trip through the newly discovered tunnels of the Civil War near Petersburg and an excellent dinner was served at the country club by the Petersburg Faculty.

The next meeting will be held in South Hill in December.

R. L. RAIFORD, *Secretary*.

The Medical Association of the Valley of Virginia

Held its regular semi-annual meeting in Winchester, September 24, under the presidency of Dr. D. M. Kipps, of Front Royal. Luncheon was tendered the members between the morning and afternoon sessions. A resolution offered by Dr. Hunter H. McGuire, of Winchester, advocating the legislative changes proposed by the Medical Society of Virginia in reference to income tax reduction and the Narcotic tax, and providing that a copy of these resolutions be sent to our senators and representatives, was adopted. Dr. P. W. Boyd, Winchester, was elected delegate to the Richmond meeting of the State Society, and Dr. Guy R. Fisher, Staunton, was elected alternate.

The following officers were elected for the coming year: President, Dr. P. W. Boyd, Win-

chester; vice-presidents, Dr. Alex F. Robertson, Jr., Staunton, Dr. C. O. Dearthmont, White Post, and Dr. J. H. Deyerle, Harrisonburg; secretary, Dr. L. F. Hansbrough, Front Royal; and treasurer, Dr. M. P. Jones, Churchville.

The Mecklenburg County Medical Society

Met at the Chase City Hospital, September 22, with a good attendance. A number of interesting papers were read and discussed. Dr. W. W. Wilkinson, La Crosse, was elected president, and Dr. A. T. Finch, Chase City, secretary. Dr. Finch was elected delegate to the coming meeting of the State Society and Dr. Wilkinson, alternate.

The Fairfax County Medical Society,

At a recent meeting, elected Dr. James H. Ferguson, Clifton Station, Va., president, and re-elected Dr. Wm. P. Caton, Fairfax, secretary. Dr. William Meyer, Herndon, was elected delegate and Dr. F. M. Brooks, Swetnam, alternate, to the Richmond meeting of the State Society.

The Truth About Medicine

In addition to the articles enumerated in our letter of July 31st, 1925, the following have been accepted:

E. Bilhuber, Inc.

Theocalcin

Theocalcin 7½ Gr. Tablets.

Lederle Antitoxin Laboratories

Anti-Anthrax Serum 20 c.c. Vial.

Tuberculin Pirquet Test ("T. O."), 10 Capillary Tubes.

Tuberculin Pirquet Test ("T. O.") 25 Capillary Tubes.

Merck & Co.

Iodipin 40 per cent.

Ampules Iodipin 40 per cent, 1 c.c.

Ampules Iodipin 40 per cent, 2 c.c.

H. A. Metz Laboratories

Novarsenobenzol-Billon 0.15 Gm. Ampules.

Novarsenobenzol-Billon 0.3 Gm. Ampules.

Novarsenobenzol-Billon 0.45 Gm. Ampules.

Novarsenobenzol-Billon 0.75 Gm. Ampules.

H. K. Mulford Co.

Proteins Dried—Mulford

Almond Protein Dried—Mulford, Apple Protein Dried—Mulford, Asparagus Protein Dried—Mulford, Banana Protein Dried—Mulford, Barley Protein Dried—Mulford, Bean (Lima) Protein Dried—Mulford, Bean (Navy) Protein Dried—Mulford, Bean (String) Protein Dried—Mulford, Beef Protein Dried—Mulford, Beet Protein Dried—Mulford, Buckwheat Protein Dried—Mulford, Cabbage Protein Dried—Mulford, Cantaloupe Protein Dried—Mulford, Carrot Protein Dried—Mulford, Cat Hair Protein Dried—Mulford, Cattle Dander Protein Dried—Mulford, Cauliflower Protein Dried—Mulford, Celery Protein Dried—Mulford, Chicken Protein Dried—Mulford, Chicken Feather Protein Dried—Mulford, Clam Protein Dried—Mulford,

Cocoa Protein Dried—Mulford, Codfish Protein Dried—Mulford, Coffee Protein Dried—Mulford, Coli (Communis) Bacillus Protein Dried—Mulford, Corn Protein Dried—Mulford, Cucumber Protein Dried—Mulford, Diphtheroid (Polyvalent) Bacillus Protein Dried—Mulford, Dog Hair Protein Dried—Mulford, Dysentery Bacillus (Polyvalent) Protein Dried—Mulford, Eggplant Protein Dried—Mulford, Egg White Protein Dried—Mulford, Egg Yolk Protein Dried—Mulford, Flaxseed Protein Dried—Mulford, Friedlander Bacillus Protein Dried—Mulford, Goose Feather Protein Dried—Mulford, Gonococcus Bacillus (Polyvalent) Protein Dried—Mulford, Guinea-Pig Hair Protein Dried—Mulford, Horse Dander Protein Dried—Mulford, Horse Serum Protein Dried—Mulford, Influenza Bacillus Protein Dried—Mulford, Kapok Protein Dried—Mulford, Lamb Protein Dried—Mulford, Lettuce Protein Dried—Mulford, Lobster Protein Dried—Mulford, Mackerel Protein Dried—Mulford, Meningococcus Bacillus (Polyvalent) Protein Dried—Mulford, Micrococcus Catarrhalis Bacillus Protein Dried—Mulford, Oat Protein Dried—Mulford, Onion Protein Dried—Mulford, Orange Protein Dried—Mulford, Orris Root Protein Dried—Mulford, Oyster Protein Dried—Mulford, Paratyphosus Bacillus "A" Protein Dried—Mulford, Paratyphosus Bacillus "B" Protein Dried—Mulford, Pertussis Bacillus (Polyvalent) Protein Dried—Mulford, Pea Protein Dried—Mulford, Peanut Protein Dried—Mulford, Pepper (Black) Protein Dried—Mulford, Pneumococcus Bacillus (Polyvalent) Protein Dried—Mulford, Pork Protein Dried—Mulford, Potato Protein Dried—Mulford, Rabbit Hair Protein Dried—Mulford, Rice Protein Dried—Mulford, Rice Powder (Polish) Protein Dried—Mulford, Rye Protein Dried—Mulford, Salmon Protein Dried—Mulford, Spinach Protein Dried—Mulford, Squash Protein Dried—Mulford, Strawberry Protein Dried—Mulford, Sheep's Wool Protein Dried—Mulford, Staphylococcus Bacillus (Albus and Aureus) Protein Dried—Mulford, Streptococcus Bacillus (Polyvalent) Protein Dried—Mulford, Sweet Potato Protein Dried—Mulford, Tea Protein Dried—Mulford, Tomato Protein Dried—Mulford, Tobacco Protein Dried—Mulford, Tubercle Bacillus (Human) Protein Dried—Mulford, Tubercle Bacillus (Bovine) Protein Dried—Mulford, Typhosus Bacillus Protein Dried—Mulford, Veal Protein Dried—Mulford, Walnut Protein Dried—Mulford, Wheat Protein Dried—Mulford.

Protein Extracts—Mulford

Almond Protein Extract—Mulford, Apple Protein Extract—Mulford, Asparagus Protein Extract—Mulford, Banana Protein Extract—Mulford, Barley Protein Extract—Mulford, Bean (Lima) Protein Extract—Mulford, Bean (Navy) Protein Extract—Mulford, Bean (String) Protein Extract—Mulford, Beef Protein Extract—Mulford, Beet Protein Extract—Mulford, Buckwheat Protein Extract—Mulford, Cabbage Protein Extract—Mulford, Cantaloupe Protein Extract—Mulford, Cat Hair Protein Extract—Mulford, Cauliflower Protein Extract—Mulford, Celery Protein Extract—Mulford, Chicken Protein Extract—Mulford, Chicken Feather Protein Extract—Mulford, Cattle Dander Protein Extract—Mulford, Clam Protein Extract—Mulford, Cocoa Protein Extract—Mulford, Codfish Protein Extract—Mulford, Coffee Protein

Extract—Mulford, Coli Bacillus (Communis)
 Protein Extract—Mulford, Corn Protein Extract—Mulford, Cucumber Protein Extract—Mulford, Diphtheroid (Polyvalent) Bacillus Protein Extract—Mulford, Dog Hair Protein Extract—Mulford, Dysentery Bacillus (Polyvalent) Protein Extract—Mulford, Eggplant Protein Extract—Mulford, Egg White Protein Extract—Mulford, Egg Yolk Protein Extract—Mulford, Flaxseed Protein Extract—Mulford, Friedlander Bacillus Protein Extract—Mulford, Goose Feather Protein Extract—Mulford, Gonococcus Bacillus (Polyvalent) Protein Extract—Mulford, Guinea-Pig Hair Protein Extract—Mulford, Horse Dander Protein Extract—Mulford, Horse Serum Protein Extract—Mulford, Influenza Bacillus Protein Extract—Mulford, Kapok Protein Extract—Mulford, Lamb Protein Extract—Mulford, Lettuce Protein Extract—Mulford, Lobster Protein Extract—Mulford, Mackerel Protein Extract—Mulford, Meningococcus Bacillus (Polyvalent), Protein Extract—Mulford, Micrococcus Catarrhalis Bacillus Protein Extract—Mulford, Milk Protein Extract—Mulford, Mushroom Protein Extract—Mulford, Orange Protein Extract—Mulford, Orris Root Protein Extract—Mulford, Oyster Protein Extract—Mulford, Paratyphosus Bacillus "A" Protein Extract—Mulford, Paratyphosus Bacillus "B" Protein Extract—Mulford, Pertussis Bacillus (Polyvalent), Protein Extract—Mulford, Pea Protein Extract—Mulford, Peanut Protein Extract—Mulford, Pepper (Black) Protein Extract—Mulford, Pneumococcus Bacillus (Polyvalent) Protein Extract—Mulford, Pork Protein Extract—Mulford, Potato Protein Extract—Mulford, Rabbit Hair Protein Extract—Mulford, Rice Protein Extract—Mulford, Rice Powder (Polish) Protein Extract—Mulford, Rye Protein Extract—Mulford, Salmon Protein Extract—Mulford, Spinach Protein Extract—Mulford, Squash Protein Extract—Mulford, Strawberry Protein Extract—Mulford, Sheep's Wool Protein Extract—Mulford, Staphylococcus Bacillus (Albus and Aureus) Protein Extract—Mulford, Streptococcus Bacillus (Polyvalent) Protein Extract—Mulford, Sweet Potato Protein Extract—Mulford, Tea Protein Extract—Mulford, Tomato Protein Extract—Mulford, Tubercle Bacillus (Human) Protein Extract—Mulford, Tubercle Bacillus (Bovine) Protein Extract—Mulford, Typhosus Bacillus Protein Extract—Mulford, Veal Protein Extract—Mulford, Walnut Protein Extract—Mulford, Wheat Protein Extract—Mulford.

Parke, Davis & Co.

Mercurous Solution.

Neo-Silvol Ointment 5 per cent.

Neo-Silvol Vaginal Suppositories.

Scarlet Fever Streptococcus Antitoxin Concentrated (Globulin)—P. D. & Co.

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Tetanus Antitoxin Purified, 20,000 Units.

Standard Chemical Co.

Radon—Standard Chemical Co.

Winthrop Chemical Co.

Sajodin Tablets, 1 Grain.

NEW AND NON-OFFICIAL REMEDIES.

Pituitary Extract Obstetrical—Merrell.—A slightly acid aqueous solution containing the water soluble principle or principles of the fresh posterior lobe of the pituitary body of cattle, preserved with 0.5 per cent of chlorbutanol. It is standardized so that 1 c.c. has an activity on the isolated uterus of the virgin guinea pig corresponding to not less than 80 per cent nor more than 120 per cent of that produced by 9.005 Gm. of standard, defatted, dried powdered posterior lobe of the pituitary gland of cattle. For a discussion of the actions and use of pituitary solution, see Pituitary Gland (New and Non-official Remedies, 1925, p. 260). Pituitary extract obstetrical—Merrell is marketed in ampules containing 0.5 c.c. and 1 c.c. The Wm. S. Merrell Co., Cincinnati.

Pituitary Extract Surgical—Merrell.—A slightly acid, aqueous solution containing the water soluble principle or principles of the fresh posterior lobe of the pituitary body of cattle, preserved with 0.5 per cent of chlorbutanol. It is standardized so that 1 c.c. has an activity on the isolated uterus of the virgin guinea pig corresponding to not less than 80 per cent nor more than 120 per cent of that produced by 0.01 Gm. of standard, defatted, dried, powdered posterior lobe of the pituitary gland of cattle. For a discussion of the actions and uses of Pituitary solution, see Pituitary Gland (New and Non-official Remedies, 1925, p. 260). Pituitary solution surgical—Merrell is marketed in ampules containing 1 c.c. The Wm. S. Merrell Co., Cincinnati.

Solarson.—A 1 per cent solution of ammonium heptachlorarsonate rendered isotonic by the addition of sodium chloride. Solarson contains from 0.255 to 0.275 Gm. of arsenic (As) in 100 c.c. Experimental evidence indicates that the arsenic of solarson is readily liberated in the system and is well utilized. It is claimed that solarson has an advantage over the cacodylates because its arsenic is better utilized, and over the arsenilates in that subcutaneous and intramuscular injection produce less pain and are less liable to produce toxic effects. Solarson is used as a means of obtaining arsenic effects in the treatment of anemia, chlorosis, malaria, neuroses and dermatoses. Solarson is supplied in ampules containing 1.2 c.c. Winthrop Chemical Co., Inc., New York.

Bismosol.—A solution of potassium sodium bismuthotartrate (containing 35 per cent. bismuth), 10 Gm.; piperazine, 0.3 Gm., in an aqueous solution of glucose sufficient to make 100 c.c. Bismosol is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (Bismuth Compounds, New and Non-official Remedies, 1925, p. 73). Bismosol is administered intramuscularly. It is supplied in ampules containing 1 c.c. Powers-Weightman-Rosengarten Co., Philadelphia.

Caprokol (Hexylresorcinol—S. & D.), 2½ Per Cent Solution in Olive Oil.—A solution of caprokol 2.5 parts in olive oil to make 100 parts. For a discussion of the actions, uses and dosage of caprokol, see Jour. A. M. A., May 2, 1925, p. 1338. Sharp & Dohme, Baltimore.

Sajodin Tablets, 1 Grain.—Each tablet contains sajodin, 1 grain. For a discussion of the actions, uses and dosage of sajodin, see New and Non-official Remedies, 1925, p. 182. Winthrop Chemical Co., New York.

Scarlet Fever Streptococcus Antitoxin Concentrated (Globulin)—P. D. & Co.—A scarlet fever strep-

tococcus antitoxin (Jour. A. M. A., May 2, 1925, p. 1338), prepared from the serum of horses treated with subcutaneous injection of toxic filtrates from cultures of scarlet fever streptococci and also with intravenous injections of the streptococci themselves. Each c.c. neutralizes from 35,000 to 40,000 skin test doses of scarlet fever toxin. The product is marketed in packages of one syringe containing 2.5 c.c. and in packages of one syringe containing 10 c.c. Parke, Davis & Co., Detroit. (Jour. A. M. A., Aug. 8, 1925, p. 437).

Diphtheria Toxin-Antitoxin Mixture 0.1 L+.—A diphtheria toxin-antitoxin mixture (New and Non-official Remedies, 1925, p. 333), each c.c. containing 0.1 lethal dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three 1 c.c. vials; in packages of one 30 c.c. vial; in packages of ten vials, each containing three doses. Eli Lilly & Co., Indianapolis.

Typhoid Mixed Vaccine, Prophylactic and Therapeutic. (New and Non-official Remedies, 1925, p. 360). This is also marketed in packages of three 1 c.c. vials. Eli Lilly & Co., Indianapolis.

Germicidal Tablets of Potassium Mercuric Iodide.—P. D. & Co.—Tablets containing potassium mercuric iodide, potassium iodide and sodium bicarbonate, colored blue. (For a discussion of the actions, uses and dosage of potassium mercuric iodide, see New and Non-official Remedies, 1925, p. 239). This product is supplied in two forms: germicidal discs of potassium-mercuric iodide No. 2—P. D. & Co., each tablet representing mercuric iodide $\frac{3}{4}$ grain, potassium iodide $\frac{3}{4}$ grain and sodium bicarbonate 16 grains, and germicidal discs of potassium mercuric iodide $1\frac{1}{2}$ grains, potassium iodide $1\frac{1}{2}$ grains and sodium bicarbonate 45 grains. Parke, Davis & Co., Detroit. (Jour. A. M. A., Aug. 15, 1925, p. 517).

Smallpox (Variola) Vaccine (Glycerinated). (New and Non-official Remedies, 1925, p. 342).—This is also marketed in packages of one tube. E. R. Squibb & Sons, New York.

Tetanus Antitoxin—Lilly (New and Non-official Remedies, 1925, p. 333).—This is also marketed in syringes containing 10,000 units. Eli Lilly & Co., Indianapolis.

Tetanus Antitoxin (Purified) (New and Non-official Remedies, 1925, p. 333).—This is also marketed in packages of 20,000 units. E. R. Squibb & Sons, New York.

Novarsenobenzol-Billon, 0.15 Gm. Ampules.—Each ampule contains 0.15 Gm. of novarsenobenzol-Billon (New and Non-official Remedies, 1925, p. 50). Powers-Weightman-Rosengarten Co., Philadelphia.

Novarsenobenzol-Billon, 0.3 Gm. Ampules.—Each ampule contains 0.3 Gm. of novarsenobenzol-Billon (New and Non-official Remedies, 1925, p. 50). Powers-Weightman-Rosengarten Co., Philadelphia.

Novarsenobenzol-Billon 0.45 Gm. Ampules.—Each ampule contains 0.45 Gm. of novarsenobenzol-Billon. (New and Non-official Remedies, 1925, p. 50). Powers-Weightman-Rosengarten Co., Philadelphia.

Novarsenobenzol-Billon 0.75 Gm. Ampules.—Each ampule contains 0.75 Gm. of novarsenobenzol-Billon (New and Non-official Remedies, 1925, p. 50). Powers-Weightman-Rosengarten Co., Philadelphia.

Anti-Anthrax Serum—Lederle (New and Non-official Remedies, 1925, p. 336).—This is also marketed in packages of one 20 c.c. vial. Lederle Antitoxin Laboratories, New York.

Tuberculin Pirquet Test ("T. O.")—Lederle (New and Non-official Remedies, 1925, p. 347).—This is also marketed in packages containing 10 capillary

tubes and in packages containing 25 capillary tubes. Lederle Antitoxin Laboratories, New York.

Pasteur Antirabic Preventive Treatment (Harris Modification)—Lilly (New and Non-official Remedies, 1925, p. 343).—Supplied in emulsion in syringes ready for use. The package containing the first seven doses is sent from the nearest Lilly depot; the second package containing the last seven doses is sent out from the home office. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., August 22, 1925, p. 584).

PROPAGANDA FOR REFORM.

The Parathyroid Hormone.—The recently reported studies make it more than likely that suitably prepared parathyroid extracts contain a substance or substances that will afford complete replacement therapy in the case of the totally parathyroidectomized dog. The methods thus far developed indicate that any extract of fresh ox gland that has been made by a process of weak acid hydrolysis and is sufficiently concentrated contains more or less of the active principle. It has been proposed to use as a provisional unit of potency one one-hundredth of the amount of extract that will produce an average increase of 5 mg. in the content of calcium in the blood serum of the normal dog of approximately 20 kg. of body weight over a period of 15 hours. There should be no haste in a possible human application of the parathyroid hormone. Injection of even very small amounts frequently repeated have invariably proved fatal to animals when the injections were continued. (Jour. A. M. A., Aug. 8, 1925, p. 441).

Calcium in Tuberculosis.—Calcium salts have been administered in the treatment of tuberculosis for various alleged reasons: to remedy calcium deficiency; to lessen inflammatory exudate; to favor calcification of lesions, and to lessen sweating and diarrhea. But calcium is not considered as an essential remedy by critical students of the subject. (Jour. A. M. A., Aug. 15, 1925, p. 539).

Hind's Honey and Almond Cream.—According to an analysis reported in 1914, Hind's Honey and Almond Cream is essentially an emulsion containing alcohol, 7.28 per cent; glycerin, 5.79 per cent; partly saponified beeswax, 5.98 per cent; crystallized borax, 1.49 per cent; perfumed with oil of bitter almonds. (Jour. A. M. A., Aug. 15, 1925, p. 539).

Tuberculin in Tuberculous Adenitis.—Tuberculin seems to be indicated when the disease is strictly localized, and especially in involvement of the cervical lymph gland. Its administration is carried on in the same way as in the tuberculin treatment for other purposes with doses that produce a slight local reaction but fall short of a general one. (Jour. A. M. A., August 15, 1925, p. 539).

Benzyl-Viburnum Compound Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Benzyl-Viburnum Compound (Benzyl-Viburnum Laboratory, Washington, D. C.), is marketed in the form of capsules. Each capsule is stated to contain 2 grains of benzyl succinate, viburnum opulus and helonin and powdered ginger root. The name "helonin" has been applied to an extractive preparation derived from false unicorn (*Helonias dioica*), of indefinite composition. Benzyl-Viburnum Compound is proposed for the treatment of dysmenorrhea and "true asthma." Benzyl esters have been found to be without value in asthma. Cramp bark (*Viburnum opulus*) and false unicorn (*Helonias dioica*), have long been constituents of proprietary "female" remedies, but there is no evidence of their efficiency. The trade package contains recommendations for the use of the preparation in painful men-

struation and the advertising suggests that the bottle of the capsules may be carried in the shopping bag. The Council concludes that Benzyl-Viburnum Compound is an indefinite complex and irrational mixture, which is marketed with unwarranted therapeutic claims and in a way to encourage its indiscriminate and harmful use by the public. (Jour. A. M. A., August 22, 1925, p. 628).

Supsalvs and Mersalv.—Supsalvs are arsphenamin suppositories put out by the Anglo-French Drug Co., and Mersalv is stated by the same firm to be a 10 per cent ointment of metallic mercury. In 1920, the Council on Pharmacy and Chemistry reported unfavorably on Supsalvs, because there was no acceptable evidence of the efficiency of arsphenamin administered rectally. Since then the inefficiency of the rectal administration of arsphenamin has been demonstrated by controlled clinical trials. The identity of the ingredients that form the base of Mersalv is not declared by the manufacturer. There is no good evidence to show that Mersalv—or any other proprietary mercurial preparation—is therapeutically superior to the official ointment of mercury. (Jour. A. M. A., August 22, 1925, p. 630).

Long Island Journal Adopts Council Standards.—Slowly but surely the work of the Council on Pharmacy and Chemistry is receiving recognition. The resolution endorsing the Council's work signed by every member of the house of delegates at the 1916 session is only the official record of the increasing support and encouragement being given by individual members of the profession. Practically every medical journal of standing refuses today to accept advertisements of pharmaceutical preparations that have not met the Council's requirement. This standard has been adopted by all of the official organs of the various state medical associations (with the notable exception of the Illinois Medical Journal). The difficulty of financing a strictly professional journal is no doubt in a great measure responsible for the failure of some publications to close their advertising columns to any but Council accepted pharmaceutical products. That the best of these journals desire to support the Council is shown by a letter from the business manager of the Long Island Medical Journal, announcing the arrival of the hopefully anticipated time when this publication can afford to solicit advertising only from manufacturers of products that met the Council's requirements. Henceforth, only such pharmaceutical products as are accepted for inclusion in New and Non-official Remedies will be advertised in the Long Island publication. (Jour. A. M. A., August 29, 1925, p. 681).

Another Mail-Order Rejuvenating Concern Declared a Fraud.—For two or three years past a mail-order concern calling itself the "Melton Laboratories, Manufacturing Chemists," has been defrauding the public from Kansas City, Mo., in the sale of an alleged sex rejuvenator. The "Melton Laboratories" were not laboratories, and the "manufacturing chemists" were neither chemists nor manufacturers. The thing was a crude mail-order swindle operated chiefly by Harold Nelson Stunz. The nostrum put out by the Melton Laboratories was called "Korex." Later, Stunz had two additional drugs added to Korex and put it out under the name "Hiobin" and created a paper organization called the "Hiobin Co." Then Stunz brought out a "Kidney Cure" that he called "Renex." This was sold by the Renex Co., another "paper concern." All three of these nostrums came from the same address, but the public had no means of knowing this, as the addresses were camouflaged to cover this fact. On August 13, 1925, the Melton Laboratories (H. M. Stunz, manager),

the Hiobin Co., and the Renex Co., had a fraud order issued against them debarring them from the use of the mails. (Jour. A. M. A., August 29, 1925, p. 694).

Book Announcements

Allergy. Asthma, Hay Fever, Urticaria and Allied Manifestations of Reaction. By WILLIAM W. DUKE, Ph.B., M. D., Kansas City, Missouri, St. Louis. The C. V. Mosby Company. 1925. 8vo. 339 pages with 75 illustrations. Cloth. Price, \$5.50.

Bone Sarcoma. An Interpretation of the Nomenclature Used by the Committee on the Registry of Bone Sarcoma of the American College of Surgeons. By E. A. CODMAN, M. D., Registrar. Paul B. Hoeber, Inc., New York. 1925. 12mo of 93 pages, with 24 illustrations. Cloth. Price, \$2.00.

Treatment of Kidney Diseases and High Blood Pressure. By FREDERICK M. ALLEN, M. D. Part I. Practical Manual for Physicians and Patients. The Psychiatric Institute, Morristown, N. J. 12mo. 210 pages.

Feeding and the Nutritional Disorders in Infancy and Childhood. By JULIUS H. HESS, M. D., Professor and Head of the Department of Pediatrics, University of Illinois, College of Medicine; Chief of Pediatric Staff, Cook County Hospital; Member of Advisory Board, Children's Bureau, Department of Labor, Washington, D. C. Fourth Revised and Enlarged Edition. Philadelphia. F. A. Davis Company, Publishers. 1925. 8vo. of 556 pages, illustrated with 42 engravings in the text and one full-page colored plate. Cloth. Price, \$4.50 net.

The Medical Follies. An Analysis of the Foibles of Some Healing Cults, Including Osteopathy, Homeopathy, Chiropractic, and the Electronic Reactions of Abrams, with Essays on the Antivivisectionists, Health Legislation, Physical Culture, Birth Control, and Rejuvenation. By MORRIS FISHBEIN, M. D., Editor of the Journal of the American Medical Association. New York. Boni & Liveright. 1925. 8vo. of 223 pages. Cloth. Price, \$2.00.

An Introduction to Objective Psychopathology. By G. V. HAMILTON, M. D., Director of Psychobiological Research, Bureau of Social Hygiene, Inc., New York City, N. Y. With Foreword by ROBERT M. YERKES, Ph.D., LL.D., Professor of Psychology, Yale University. St. Louis. The C. V. Mosby Company. 1925. 8vo. 354 pages. Cloth. Price, \$5.00.

Boys' and Girls' Camps, N. H.

New Hampshire now requires that all camps for boys and girls in the State shall be licensed by the State board of health. A license is granted only if the camp is kept in a sanitary state and has a safe water supply.

Diphtheria Prevention, Philadelphia.

The Philadelphia Department of Public Health announces a campaign of public education for the immunization of all school children in the city against diphtheria.

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Editorial

The Subject of Birth Control.

Much is said and written, loosely and unconsideredly, of the modern idea of birth control. Any discussion of the subject is a daring matter and there always arises the question if in controlling the birth of human beings we are not assuming a divine prerogative.

Fifty years ago both the higher and lower intellectual types raised large families. Today the lower types are having from eight to twelve children per couple, while the higher intellectual types are having less than four. This decline in the birth rate of the best stock leaves the future of America in the hands of the lower type of citizens.

Just what does birth control mean? Does it include the use of preventive measures to conception? Does it include continence? Does it include abortion? Does it include Spartan infanticide? Does it include pre-adolescent or postadolescent sterilization? Then, too, whose birth is to be controlled? Only the defectives, the criminals and the diseased, or may it not become fashionable for Jones to have his wife sterilized before or after marriage, or Mrs. Smith her husband?

And who is to control the controllers? The governor, the legislature, the doctor, the lawyer, the butcher, the baker, the unmarried or the married, or a conglomerate board of these elements? Might not politics creep into the matter as it has into the church, into the jail, into the counting house and into the mart?

Should we not take into consideration that the very parents who have given the world defectives have also given the world some of its most brilliant and useful citizens. Shall we stop the propagation of both? Queen Elizabeth's father was a syphilitic and a murderer and her mother a prostitute but we are proud of the Elizabethan age of culture and we feel that if it had not been for Elizabeth the English speaking colony in America would probably not have succeeded.

It is impossible at the present time to come to a definite conclusion about what good may come out of birth control, if any. The wisest measure would seem to make Public Health, now under the Treasury Department, a regular department of the government so that the subject of birth control and other subjects may be more adequately studied. Philanthropists could do no greater service than to establish a foundation for the study of the prevention of nervous and mental diseases for there are now said to be more beds in insane and feeble-minded institutions than there are in all the other hospitals of the United States added together. With a problem that looms as large as this one, however, results should not be expected until after long, patient and diligent investigation and experimentation.

B. R. T.

Diabetes After Three Years of Insulin.

Diabetes appears to be increasing in incidence in spite of the widespread popular interest aroused by the discovery and publicity given the use of insulin. The increase in the number of cases may not be due, certainly not altogether, to the increase in the total number of cases, but to the discovery of existing cases that had been unknown. Many cases have recently been found among women; formerly, men appeared to have the disease relatively in greater number than women. This may be due to (a) the increase of obesity among women, probably caused by the excessive use of candy, soft drinks, and "parties;" (b) the more frequent urinary examinations among women than formerly, resulting from the desire to reduce obesity; (c) health insurance examinations on women in business life offering more frequent opportunity for discovery of diabetes.

The widespread occurrence of diabetes and its increase of known incidence should make

its consideration more or less interesting to practitioners, especially so, since the use of insulin has advanced its treatment to a more scientific position in practice.

BEFORE INSULIN.

It is but fair to say that certain cases of diabetes were as well in hand before as they are now, after insulin.

Cases of diabetes in the adult without complications, having a tolerance for carbohydrates of 100 to 150 grams, were easily managed by dietary treatment. In these cases, at the present time, we do not use insulin. In the gradual building up of diet, in the search for carbohydrate tolerance, under the general plan, as followed in the Allen treatment, carbohydrate mechanism utilizes long stored glycogen in liver and muscle, and brings about a metabolic adjustment in the patient, producing a sugar-free urine, a moderate blood-sugar and a well-being in the patient. The educational advantages of daily instruction of the patient in the method pursued in determining the carbohydrate tolerance, in the value and nature of the foods, in the meaning and purpose of "carbohydrate," "protein" and "fat" in the diet and the caloric worth of these food elements to the body, tend to produce, not only a patient free of urinary sugar, but also a patient interested in the health problem under consideration.

This has been our experience in mild cases. In these cases insulin is not given. These patients often come expecting insulin, and they express surprise, and sometimes regret, at not receiving insulin treatment. Usually, considerable patience is required to overcome the impatience of these patients. An explanation that insulin does not cure diabetes, that it is an agent to help in cases incapable of producing enough "private" insulin, and that its most potent, and really most important, application is in cases of a severe grade, seems to right the matter in these patients' minds. After this, co-operation is more easily obtained in these patients.

A considerable number of our cases of diabetes, some of whom have been under our care for ten years, have never received insulin. A few cases of this type may have received an initial treatment of insulin with the diet, in order to bring them more quickly to a lower

blood-sugar level, but none have gotten prolonged insulin treatment. The treatment of diabetes by diet, without insulin, in a large proportion of mild diabetes is satisfactory. Although it is the third year since this widely advertised, potent and useful remedy has been introduced and used, many cases, to repeat, are never given a dose. If given any, it is because of the exigencies of the individual case. It is our belief that insulin should not be used unless it is emphatically needed. The reasons are obvious why insulin should not be used in cases that can make enough "private" insulin.

INSULIN.

Insulin, however, is a potent remedy. It is preeminently an epoch in diabetes. Its discovery and perfection mark an outstanding event in the history of medicine. In a thousand years of diabetes, no therapeutic event exceeds its discovery in importance. So, the year nineteen hundred and twenty-two is "the year of insulin." In severe cases of diabetes and complications, insulin has an important place.

It is not our purpose to discuss dosage of insulin in detail. We are often asked how we give insulin. We must say that we have no fixed plan for all cases; each case seems to require individual method, more or less. There are many things that influence the method. If the patient is in coma and in the hospital, large doses are given, with repeated examinations of blood and urine for sugar determinations. If the patient is a severe type and is able to remain in the hospital for a reasonable time, gradual elimination of fats and protein and carbohydrate is followed until complete fast is given. Then building up the diet is begun, and insulin is only used if the carbohydrate tolerance is too low. If the case requires more vigorous treatment, insulin may be given with a modified diet. Adjustment and building up with insulin is practiced to a maintenance point. There are many plans of administration, but no one has devised a better one than Joslin, although there are numbers of others with definite formulae for computation.

INSULIN IN JUVENILE DIABETES.

In diabetes of childhood, we feel that insulin assumes heroic values. Before the era

of insulin memories of the tragic course of diabetes in children may be said to be ghastly. We recall especially two young girls whose downward course was unabated in spite of every known dietary measure and plan of management. The efforts of the mother, father and family to assuage the appetite and at the same time to adhere to the orders and directions in diet were indeed pathetically futile. These cases came gradually but surely to diabetic coma. After insulin came, the diabetic child seemed to get a better chance: this has been our experience, and no doubt yours. The arrest of the downward course of the disease under dietary and insulin treatment was the first reaction, as against the persistent downward progress of severe juvenile diabetes before insulin came. One felt, as insulin held in abeyance untoward clinical and laboratory findings, that, at least, a therapeutic agent was at hand capable of staying the disease for a time. Again, as one was able with insulin to build up carbohydrate tolerance and drive away signs of acidosis, thus, witnessing growth and increase of weight, one was more impressed with the potency of insulin for diabetes of youth. An instance of the power of insulin in connection with diet is worth reciting: The child was in coma when brought to the hospital; and with insulin, fruit juice and glucose, the ketosis was relieved. The patient's tolerance and a balanced ration for maintenance and growth being the next problem, we were, by inadvertence or possibly in an effort too quickly to reach a standardization of the patient's diet on a high fat basis, surprised to find the patient, during the course of treatment, entering acute acid intoxication, as shown by urine, mental stupor and dyspneic breathing. Again, insulin administered, with a readjustment of diet, restored this patient to the safety zone. This little patient was given hospital treatment from October 14, to December 2, 1923. On entering the hospital, she weighed 38 pounds; blood-sugar was 150 mgm. per 100 c.c. of blood; acetone and diacetic acid were heavy, and sugar was strongly positive, with clinical symptoms of coma. When heard from in June, 1924, patient was weighing $44\frac{1}{4}$ pounds, was on a diet of 65 grams carbohydrates, 50 grams protein, and 30 grams fat; before each meal she was receiving 6 units of insulin hypodermi-

cally. The urine was free of acetone and diacetic acid, but positive for sugar. If insulin had not been given, this patient would have died, we believe, within thirty-six hours. A letter from the sister of the patient, dated August 1, 1925, says, "Bessie has been getting along very nicely, has been steadily gaining, and looks the picture of health. She attended school last winter and got along nicely with her work. At present, she is taking 4 minims ($10\text{-}2\frac{2}{3}$ units) of insulin—U-40 strength—three time a day."

In children, diabetes grows worse; consequently, insulin and diet adjustment are required even in mild cases. Small doses in repeated administrations, properly timed before the feedings, give the best results in juvenile cases. In this way, islets may be rescued and with the growth and development of the child new islets may increase the insulin output of the growing pancreas.

INSULIN IN COMA.

As in juvenile and severe diabetes, insulin in coma stands out as a master therapeutic agent. Before insulin came, coma was amenable, at times, to a well rounded therapeutic attack in most cases in the adult. The liberal use of water, rest in bed, warmth, evacuation of bowels, administration of abundance of orange juice, or glucose, possibly sodium bicarbonate and whiskey, were routine measures, in connection with cardiac and renal stimulants, in bringing these cases around. Often, however, these measures failed. We recall a young married woman who attempted to give herself the fasting treatment after she was told she had diabetes. She was found in a diabetic coma. No response was gotten from vigorous treatment. Had we possessed insulin, it is probable that the perverted fat metabolism might have been stopped and carbohydrate combustion lighted again, and the patient brought, thus, out of the intoxication of a profound acidosis.

The first case on whom we used insulin was one of coma on November 16, 1922. A young man, with blood-sugar of 426 mgms. per 100 c.c. of blood, and marked ketosis, was given 8 units of insulin every hour; then after a rest of ten hours, was given 10 units every hour for thirteen hours, with a rest of twelve hours; and then 10 units every hour until urine-sugar began to decrease and blood-sugar

fell to 168 mgm. Clinical symptoms cleared and urine became free of diacetic acid and acetone. From this he was put upon a low maintenance diet. This patient died a year afterwards from an erysipelas.

In coma insulin is used in large doses. Repeated blood-sugar determinations and urine examinations are made during the intensive administration. Usually, coma yields. One case, we recall, in whom it was a question of whether or not there was a cerebral embolus with unconsciousness, appears to have failed. The patient was living in an adjoining county and laboratory assistance was not available.

Before the days of insulin the pathetic death by acidosis was a spectre ever threatening; now, in the time of insulin, one may feel reassured and well armed. Death by diabetic coma now should occur rarely, if at all.

News Notes

Come One, Come All! To the Richmond Meeting.

Almost as you read this issue of the journal, members of the Medical Society of Virginia are gathering in Richmond for its fifty-six annual meeting. All indications point to a well attended and interesting meeting, and every member of the Society is cordially invited to attend.

We have introduced an innovation this year in the form of medical moving pictures. The invited guests are men whom you will want to hear and meet. Wives and daughters of members will be entertained while the scientific sessions are in progress and diversions will also be offered members. College alumni "get-togethers" in the form of dinners on Thursday evening are being arranged.

Dr. Wendell C. Phillips, president-elect of the American Medical Association will also address the members.

Arrangements have been made whereby the golf tournament will be held at Hermitage Club, rather than at the Country Club of Virginia, as previously announced.

This is your meeting. You will be more interested in everything pertaining to Society activities if you attend meetings. Now is the time to start the habit.

The dates are October 13, 14, 15, and 16. The place Richmond.

The Pediatric Clinic of the University of Virginia Hospital

Opened its new building on September 21st.

It is proposed to conduct a General Child Welfare Clinic. Trained public health Pediatric nurses, student nurses and medical students will be employed, all of whom will not only work in the Clinic Building, but will do follow-up work in the field. It is proposed to start this work in the territory immediately surrounding the University Hospital, working out radially as progress is made, ultimately reaching the mountain people of the western part of this State. These people, it is well known, are in very great need of instruction in personal hygiene and preventive measures generally. This is particularly true of the children.

A further aim of this work will be to make an intensive study of these people sociologically and anthropologically. It is hoped that definite contributions will be made to pediatrics as well as sociology and anthropology, through this beginning. It is estimated that this work will cost \$10,000.00 a year for the first three years, and this amount is already in hand. Funds have been secured largely through the Commonwealth Fund of New York, but other sources have been drawn upon, largely private individuals, and the ladies of the University Hospital League raised a large sum of money for this work from the people of Charlottesville. A new building has been erected to house these activities, and it is believed that a new era in pediatrics, not only in Virginia, but in the South, has been inaugurated.

This work is under the direction of Dr. L. T. Royster, assisted by Dr. W. W. Waddell.

To Teach Preventive Medicine at Medical College of Virginia.

Dr. Arthur D. Knott, for several years in charge of the public health work in Accomac County, Virginia, under the direction of the State Board of Health, has accepted the position of acting professor of preventive medicine at the Medical College of Virginia. He takes the place of Dr. E. C. Levy, who secured an indefinite leave of absence from the College that he might become chief health officer of Tampa, Florida. Dr. Knott received his degree as doctor of public health at Johns Hopkins University, Baltimore, and made a most creditable

record as a result of his work in Accomac County.

Dr. Robert P. Cooke,

Front Royal, Va., who has been connected with the army re-mount station at that place, has been secured to succeed Dr. A. D. Knott in charge of the health work in Accomac County, Va., under the auspices of the State Board of Health. Dr. Cooke has had a good deal of experience in connection with health work and was associated with Dr. Walter Reed in his fight against yellow fever. He is expected to enter upon his new duties the latter part of October.

The American Roentgen Ray Society

Held its annual meeting at the Mayflower Hotel, Washington, D. C., September 22-25, inclusive. The attendance was good, and scientifically and socially the meeting was excellent. There was a golf tournament at the Congressional Country Club, which was followed by a buffet luncheon, and Mrs. Coolidge tendered a reception to the ladies. One evening was given over to a banquet and, in an "after dinner" talk, Frederick William Wile entertained the audience with "Behind the Scenes at Washington." This was followed by a ball. The Caldwell lecture in memory of Dr. Eugene Caldwell, X-ray martyr, was delivered by Dr. James Ewing, of New York City. His address on "Tissue Reaction to Radiation" was illustrated and was a masterpiece.

The Leonard prize of \$1,000, given periodically, in competition for the best paper portraying original work in X-ray, was awarded this year in the form of two prizes: The first prize of \$600 went to Dr. Evarts Graham and his co-workers, Drs. W. H. Cole and G. H. Copher, of St. Louis, for their work in the study of the gall-bladder; the second prize of \$400 was awarded G. Failla, Ph.D., and his co-workers at Memorial Hospital, New York City, for their study pertaining to measurement and dosage in radium treatment.

It was decided to change the time of meeting, time for the next convention being set for the Spring of 1926 in Detroit, Mich. Officers are: President, Dr. Thomas A. Groover, Washington, D. C.; President-elect, Dr. Russell D. Carman, of Mayo Clinic, Rochester, Minn.; vice-presidents, Dr. P. F. Butler, Boston, Mass., and Dr. Wm. M. Doughty, Cincinnati; secretary, Dr. Charles L. Martin,

Dallas, Texas; treasurer, Dr. Wm. A. Evans, Detroit, Mich.

Dr. and Mrs. Stephen H. Watts

Have returned to their home at University, Va., after a visit to New York City.

Dr. Charles H. Moncure

Has been re-elected health officer of Orange, Va.

Dr. and Mrs. A. B. Householder

Have returned to their home at Lovettsville, Va., after a motor trip to New York, Niagara, and other places of interest.

Dr. William H. Parker,

For six years a member of the City School Board of Richmond, Va., has tendered his resignation, owing to the fact that he has moved from the district from which he was named.

Dr. Joseph A. McGuire,

Norton, Va., has been appointed by Governor Trinkle as a member of the State Board of Health of Virginia, to fill the unexpired term of Dr. H. M. Miles, of Norton, deceased.

Dr. and Mrs. Beverley Wellford

Have returned to their home in Richmond, after a visit to Nimrod Hall, Bath County, Va.

Dr. and Mrs. A. T. Finch,

Chase City, Va., returned home about the middle of September, after an extended western trip. They left early in August for Vancouver, B. C., accompanied by their young daughter, Miss Mary Finch, who sailed from that port for Japan, where she enters the foreign missionary field. Dr. and Mrs. Finch returned home by way of San Francisco, and the Yellowstone National Park.

Dr. and Mrs. H. W. Porter

And family returned to their home at Louisa, Va., early last month, after a trip to Canada and points of interest in the Northern states.

The Edmunds Hospital,

Danville, Va., has been undergoing improvements amounting to \$10,000 which will add greatly to the comfort and convenience of patients and hospital employees.

Members of Danville Board of Health.

Drs. Samuel Newman, R. W. Garnett, Charles W. Pritchett and R. Bruce James were recently elected members of the Danville, Va., Board of Health.

Married.

Dr. Frank B. Stafford, of the medical staff

of the Blue Ridge Sanatorium, Charlottesville, Va., and Miss Nancy Letitia Morton, superintendent of the Sanatorium, September 4, at the home of the bride in Bluefield, W. Va.

Dr. George H. Long, Luray, Va., and Miss ZeDene Horn, Barnesville, Ga., September 7.

Dr. Lee Spottswood Liggan, Callao, Va., and Miss Alice Elizabeth Hechler, Richmond, September 9.

Dr. Randolph McCutcheon, Fairmont, W. Va., and Miss Gladys Gertrude Lumsden, Richmond, Va., September 19. Dr. McCutcheon is a member of the class of '24, Medical College of Virginia.

Dr. Dempsey Barnes, Proctorville, N. C., and Miss Dorothy Neagle, in Baltimore, Md., September 5. Dr. Barnes graduated from Medical College of Virginia last June, at which time he was appointed one of the interns at Johnston-Willis Hospital, Richmond.

Dr. Berryman Green, Jr., formerly of Virginia and a member of the class of '17, University of Virginia, and Mrs. Alice Gordon, in Denver, Colorado, September 14.

Dr. Churchill Robertson,

Of Salem, Va., has relinquished his private practice in that place and has gone to Saranac Lake, N.Y., prior to affiliating himself with Mt. Regis Sanatorium, Salem, Va.

While away, Dr. Robertson will visit some of the large tuberculosis clinics of the East.

Dr. Harry M. Wallace,

Greenville, Va., has been appointed by the Augusta County Council, as one of its delegates to the National Country Life Association, which will meet in Richmond, October 27-31.

The Southwest Virginia Registered Nurses' Association

Held its annual meeting at the home of Miss Roberta Killinger, in Marion, September 11. Interesting talks were given by several members and the following officers were elected for the ensuing year: President, Miss Carrie Mae Copenhaver, Bristol; vice-president, Miss Rebecca Preston, Meadow View; secretary-treasurer, Miss Irma Fortune, East Radford. Following the meeting, refreshments were served by the Marion nurses.

Dr. Daniel M. Moore,

Recently of Stonega, Va., has moved to Monroe, La., where he has accepted an ap-

pointment as roentgenologist to the St. Francis Sanitarium. He entered upon his duties there September 1st.

Dr. G. G. Hankins,

Formerly of Phoebus, Va., who has been assistant resident physician at the Philadelphia General Hospital, for the past eighteen months, has located in Newport News, Va., at 118 Twenty-sixth Street. He will confine his work to the practice of ophthalmology, otology, rhinology and laryngology.

Dr. G. W. Skaggs,

Of the class of '08, Medical College of Virginia, who has been practicing for sometime at Beards Fork, West Va., has located at Page, W. Va., where he will continue his professional work.

The American Public Health Association

Will hold its fifty-fourth annual meeting in St. Louis, Mo., October 19-22, with Hotel Statler as headquarters. Information about this meeting may be obtained of its executive secretary, Mr. Homer N. Calver, 370 Seventh Avenue, New York City.

The Wilmer Eye Institute, Johns Hopkins University,

Was opened October 1st, with sixty beds. Dr. William Holland Wilmer, formerly of Washington, D. C., is director. He, Dr. Cecil H. Bagley and Dr. R. S. Wygodski have given up private practice and will devote their full time to this work.

Dr. Homer Spitler,

Middleburg, Va., was a recent visitor at the home of his brother in Luray, Va.

Dr. F. N. Bowles,

Of Chester, Va., has completed an interne service at Watts Hospital, Durham, N. C., and is now a resident physician at Lying-in Hospital, New York City.

Dr. Arthur D. Ownbey,

Newport News, Va., is taking a post-graduate course at New York Post-Graduate Medical School and Hospital, New York City.

Annual Registration of Physicians Required in Pennsylvania.

A law has been adopted in Pennsylvania which requires that all persons engaged in the practice of medicine or any allied branch of the healing art, in the State of Pennsylvania, shall register as practitioners, with the Board of Medical Education and Licensure in the

Department of Public Instruction, annually, on or before the first day of January. A penalty is prescribed for those not abiding by the law.

Mrs. William C. Powell,

Petersburg, Va., returned home about the middle of September, after spending the summer in touring Europe. While abroad, Mrs. Powell visited England, Scotland, Holland, Belgium, Germany, Italy, Switzerland and France. She returned by way of Montreal, Canada.

Dr. and Mrs. S. E. Weymouth,

Callao, Va., are home again after a visit to Baltimore.

The Health Food Show

Will be held in Indianapolis, Ind., October 10 to 17, inclusive, under the direction of Dr. E. V. McCollum, of Johns Hopkins University, in connection with the National Dairy Exposition. Many features of unusual interest are promised in connection with this Health Food Show.

Dr. Leta J. White,

Of Richmond, recently visited friends at Callao, Va.

Dr. and Mrs. S. E. Hughes,

Danville, Va., are home again after spending sometime at Asheville, N. C.

Scholarships Available in Post-Graduate Work.

It is announced that scholarships on the Oliver-Rea Foundation for graduate study in medicine are available at the New York Post-Graduate Medical School and Hospital. Inquiries should be addressed to the Dean, 301 East Twentieth Street, New York City.

Dr. and Mrs. A. R. Shands

And daughter, of Washington, D. C. recently visited friends at Appomattox Manor, near Petersburg, Va.

Dr. and Mrs. L. G. Richards

And family, of Roanoke, Va., spent sometime in September with friends at Midlothian, Va. Dr. Richards, who is a member of the Virginia State Amateur Trapshooting Association, entered the annual shoot on Labor Day, and made a good record.

Dr. Robert Glasgow

Was recently re-elected health officer of Lexington, Va.

Dr. W. Calhoun Stirling,

Washington, D. C., was recently appointed as instructor in genito-urinary surgery in Georgetown University Medical School, of that city.

Dr. and Mrs. W. Morrison Robinson,

Richmond, after a short motor trip to points of interest in Virginia and North Carolina, have returned home and are now located at 411 North Boulevard.

New Members of W. Va. Health Council.

Dr. Hugh A. Barbee, Point Pleasant, and Dr. Benj. O. Robinson, Parkersburg, have been appointed by the Governor of West Virginia as new members of the Health Council of that State.

Dr. and Mrs. Burnley Lankford,

Of Norfolk, Va., recently motored to Hot Springs, Va., where Dr. Lankford attended the meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons. They returned home by way of Sweet Briar College, where they visited their daughter, Miss Elizabeth Lankford, who is a student there.

Dr. I. C. Riggin

Has resigned as epidemiologist to the State Board of Health of Virginia, and has accepted the position as health officer of Oberlin, Ohio.

Marriage Rate in Virginia Declines.

Nineteen hundred and nineteen was the banner year for weddings in Virginia, there having been 50,904 persons to marry that year. Last year, 44,354 people married in Virginia, which was over 1,300 less than in 1923. This brings about a decline in the 1925 birth rate also.

Since North Carolina passed a law requiring the physical examination of the man before securing a marriage license, the number of persons applying to the clerk of Greenesville County, Virginia, for marriage licenses has considerably increased. Whether or not the North Carolina law is responsible for this is in doubt, however, as this is the only border county in Virginia in which this condition exists.

Dr. W. H. Newcomb Goes to Illinois.

Dr. W. H. Newcomb recently tendered his resignation as head of the health unit of Nansemond County, Va., with headquarters at Suffolk, to accept the position as health

officer at Jacksonville, Ill. He has been succeeded by Dr. Charles F. Moriarty, who is a graduate of Dalhousie University, Halifax, Nova Scotia, and has had training under the International Health Board. He will have headquarters at Suffolk.

Dr. Andrew J. Nelson.

Seattle, Wash., a former Virginian, while in the East on a trip in the interest of his work with the Government, availed himself of the opportunity to visit friends and relatives in Virginia. Dr. Nelson continues his membership in the Medical Society of Virginia and called at the Society's offices during his stay in Richmond.

Dr. George H. Snead,

Of Fork Union, Va., after post-graduate work in Washington, D. C., has located in Lexington, Va., and taken over the office and work of the late Dr. B. W. Switzer. His practice will be limited to diseases of the eye, ear, nose and throat.

Dr. and Mrs. E. J. Nixon,

Petersburg, Va., were called to Washington, D. C., the latter part of September, by the illness and death of Mrs. Nixon's sister.

Dr. James M. Whitfield, Jr.,

One of the resident physicians in the Medical College of Virginia, Hospital Division, underwent an operation for appendicitis at Memorial Hospital, Richmond, the last of September.

Dr. H. D. Gilmer,

Formerly of Virginia, but now of Hagerstown, Md., has returned from Vienna, Austria, where he has been taking post-graduate work in eye, ear, nose and throat. He was a member of a group headed by Dr. George W. Mackenzie, of Philadelphia. There were about forty doctors in the party, which represented nearly every state in the Union. From the number of doctors seen in Vienna it would seem that this place still holds its prestige as a great medical center.

Besides interesting post-graduate work, an opportunity was afforded this party to do some sight seeing, especially on the way home. Some of the places visited were Venice, Milan, Luzerne, Interlaken, Geneva and Paris.

Dr. D. B. Lepper,

For sometime health officer of Isle of Wight County, Va., has been transferred to Sussex

C. H., and has charge of health work in that county.

Dr. G. Foard McGinnis, of the class of '25, University of Virginia, has succeeded Dr. Lepper in Isle of Wight County, and is located at Smithfield, Va.

The American Electrotherapeutic Association

Held its annual meeting in Chicago, the middle of September, at which time Dr. Victor G. Pedersen, of New York City, was elected president. Dr. Richard Kovacs, also of New York, was re-elected secretary.

Dr. and Mrs. J. R. Adams,

Blackstone, recently spent their vacation with friends, on a motor trip which included a visit to Jamestown and Williamsburg, Va.

When the Doctor and the Red Cross Work Together.

The town which is bereft of hospitals presents a serious problem. But by the union of the local chapter of the American Red Cross and the medical society makeshift hospitals have been constructed which surmount the handicap. The combination furnishes one of the most interesting phases of Red Cross work.

It may be that a bed or two is placed in the Red Cross public health nurse's office so that in imperative need an emergency patient may be given immediate care. From this headquarters the mother may obtain in her own home the same skilled nursing care which she might receive in a maternity hospital.

For tonsillectomies, more elaborate arrangements must be made. A place must be secured, the upper floor of the Court House perhaps, or a spare room in City Hall. The community is asked to co-operate with the doctors and nurses and generous merchants come forward with cots, bedding, tables, chairs or some of the various things needed for an improvised hospital. The actual operations are performed by a specialist who comes from the city.

In the time of great catastrophes the Red Cross must be quick to make arrangements to fit the situation. The Red Cross mobile disaster relief unit is ready for service any hour of the day or night. It sends special trains, doctors, nurses, cots, bedding, surgical supplies, even portable X-ray machines, bandages, medicine and other equipment. Then emergency hospitals, dressing stations and dispensaries are set up in various sections of the stricken

area. Just after the great tornado in the Middle West last spring the First Aid Car became a hospital with 50 patients. The Indianapolis chapter sent by airplane anti-tetanus serum urgently needed by doctors at Murphysboro and Carbondale.

No one knows better than the doctor that this work should go on. Every membership taken out during the annual Roll Call, from Armistice Day to Thanksgiving, November 11 to 26, will be used to further this cause.

Dr. Warren T. Vaughan,

Richmond, Va., announces the establishment of a Kidney Clinic for the investigation and treatment of nephritis and allied conditions, particularly arteriosclerosis and hypertension. Clinic hours are on Fridays between two and five, at which time only charity cases referred by the attending physician or social service organization will be cared for.

The Clinical Congress of the American College of Surgeons

Will hold its annual session at the Bellevue-Stratford Hotel, Philadelphia, October 26-30, under the presidency of Dr. Rudolph Matas, of New Orleans, La. Dr. Franklin H. Martin, Chicago, is director-general.

Dr. Stanton K. Livingston,

Of University, Va., who graduated from the University of Virginia, Medical School, in June, after several months at the State Hospital, Middletown, N. Y., entered upon his duties as intern at University of Pennsylvania Hospital, Philadelphia, early in October. He received appointment to the last named hospital at time of his graduation.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons

Held its thirty-eighth annual meeting at Hot Springs, Va., September 16-18. Dr. George Clark Mosher, Kansas City, Mo., was elected president; Drs. Edmund D. Clark, Indianapolis, Ind., and Palmer Findley, Omaha, Nebr., vice-presidents; and Dr. James E. Davis, Detroit, Mich., was re-elected secretary. Chicago was selected for the next place of meeting in September, 1925. This is the first time this Association has met in Virginia. Drs. M. P. Rucker and Greer Baughman, of Richmond, and Dr. Burnley Lankford, Norfolk, are the only Virginia doctors who are members.

Dr. and Mrs. W. A. Lambeth

Have returned to their home at University, Va., after a trip abroad. Most of their time was spent in Italy and Switzerland.

Dr. H. M. DeJarnette,

Fredericksburg, recently visited his sister at her home near Orange, Va.

Dr. George B. Wood

Has returned to his home at Emporia, Va., after a visit to Pennsylvania and Maryland.

Dr. A. L. Stratford, Jr.,

Announces the removal of his offices to 1601 Monument Avenue, Richmond.

The Medical College of Virginia,

Richmond, opened its 1925-1926 session the middle of September, with an enrollment of 500 in its departments of medicine, dentistry, and pharmacy, that of the medical school alone being about 350. Because of lack of space, more than two hundred applicants for matriculation had to be refused.

"Health Audit."

The Gorgas Memorial Institute has on a campaign of health education, its purpose being to aid every one to a longer life. An important phase of this work is the periodic health examination—for the doctor and his patients. This should be urged upon every one as the best means of detecting diseases in their incipency.

Pulaski to Have New Hospital.

Stock has been subscribed for a \$40,000 hospital in Pulaski, Va., and, as soon as a charter has been secured, plans and specifications will be received. The hospital will be known as the Pulaski Hospital, Incorporated. Present officers are Dr. R. H. Woolling, president; Dr. R. F. Thornhill, vice-president; and Dr. D. S. Divers, secretary-treasurer.

The Park West Medical Building

Is the name of a private general hospital which is to be erected at once on the south side of 76th Street, just off Amsterdam Avenue, New York City. The building will be eight stories, absolutely fire and noise proof, and will have sixty suites, with a capacity for seventy-eight patients. Dr. Harold M. Hays is head of the enterprise and has associated with him several well known physicians and a group of business men. It is expected the hospital will be opened about May 1, 1926.

Annual Report of the Central State Hospital

Has just been received at the office, for the nine months ending June 30, 1924, and the year ending June 30, 1925. At the last date, there were 2,271 patients' names on the books, with 2,143 in the hospital. General health of the patients was good with only minor accidents and injuries reported. There are special departments for the epileptics and tubercular patients. The percentage of patients employed since 1911 has varied from 72 to 86 per cent. In conjunction with this, suitable recreations and diversions are provided. Altogether the report shows that excellent work has been accomplished.

Tonsil Clinic in Goochland.

Late in September a tonsil clinic was held in Goochland County, Va., by the County Welfare League, at which time thirty children had their tonsils removed. Surgeons and nurses from Richmond were assisted by Dr. T. M. Taylor, State Farm, Dr. L. K. Leake, East Leake, and Dr. W. K. McCoy, Gum Spring.

The U. S. Civil Service Commission,

Washington, D. C., announces the following open competitive examinations, information about which may be obtained from the above named Commission, Washington, D. C., or the secretary of the board of U. S. Civil Service Examiners at the postoffice or customhouse in any city:

Junior medical officer, assistant medical officer, associate medical officer, medical officer, and senior medical officer; graduate nurse and graduate nurse (visiting duty); and dietitian, applications for all of the above named positions to be rated as received until December 30, 1925; also, for physiotherapy aide, physiotherapy pupil aide, and physiotherapy assistant, receipt of applications to close October 24 and November 28.

Sunlight and Health, England.

Studies by physicians and scientists in England reported at the Congress of the Royal Institute of Public Health, held at Brighton in May, indicate that sunlight, "either natural or artificial, when properly administered, may have a definitely beneficial effect on mental activity." It was found that children handicapped in school work by illness, when cured with the aid of sunlight, caught up with or out-distanced their classmates.

Child Marriage, India.

Statistics given by a writer in the *Times of India*, published in Bombay, show the extent of child marriage in India. The figures are from the 1921 census report for the Bombay Presidency. They show that in 1921 there were in Bombay, in round numbers 49,000 married girls under the age of 5 years, of whom more than 2,000 were widows; 261,000 between the ages of 5 and 10 years, 13,000 of whom were widows; 643,000 between the ages of 10 and 15, of whom 34,000 were widows. The infant death rate in Bombay in 1924 was 411 per thousand live births, compared with the United States rate (1923) of 77.

Operating Room Completed.

The Elizabeth Sharpless Keith operating room at the Fauquier County Hospital, Warrenton, Va., was just completed last month. This room represents about \$5,000 for equipment.

Wanted.

A good doctor, in a field that will pay \$6,000 or more annually. Open now. Address P. O. Box 24, Criglersville, Va. (Adv.)

For Sale.

Virginia \$7,000.00 practice and property. Tidewater town 1,200. Rich country. Competition right. Practice easily increased to full capacity. Modern brick residence, offices and garages. Good roads, churches and schools. Model community. Price \$5,000.00; require \$3,000.00. No triflers. Specializing. Address No. 433, care this journal. (Adv.)

Obituary

Dr. Carlisle Lamar Nottingham,

A prominent doctor of the Eastern Shore of Virginia, died at Saranac Lake, N. Y., September 18, after an illness of two years. He was born at Seaview, Va., forty-one years ago. Upon completion of his academic education, he entered the Maryland Medical College, Baltimore, from which he graduated in 1905. After this he took a post-graduate course at Johns Hopkins University for another year, following which he took up the practice of his profession at Cape Charles, Va. He had been a member of the Medical Society of Virginia since 1906 and was also a member of the American Medical Association. His funeral was

conducted with Masonic honors. Dr. Nottingham is survived by his wife, three children and a large family connection.

Resolutions on Death of Dr. Nottingham.

WHEREAS, The Northampton County Medical Society has learned with sincere regret of the death of Dr. Carlisle L. Nottingham, and

WHEREAS, Dr. Nottingham in the history of his career has been an ornament to the profession, a self-sacrificing and devoted minister in the relief of human suffering; therefore,

Be it Resolved, That this Society desires to place on record its sense of loss in the death of Dr. Nottingham to the profession and to humanity, and

Resolved, That this preamble and these resolutions be placed on record, that a copy be sent to his family, and that they be published in the county newspapers and *Virginia Medical Monthly*.

Signed:

G. FRED FLOYD,

J. MORTIMER LYNCH,

Committee.

Dr. Henry Morgan Miles,

Of Norton, Va., was found dead in bed at his home in that place on September 8, though he had apparently been in good health before then. Dr. Miles was born at Jonesville, Va., in 1867, and received his early education at Jonesville Institute. After this, he took up the study of medicine at Louisville Medical College, receiving his diploma from this college in 1890. It had been his habit to take post-graduate courses practically every year. Dr. Miles had been a member of the Medical Society of Virginia since 1903, was a member of the American Medical Association and was a member and an ex-president of Wise County Medical Society. He was also a member of the Virginia State Board of Health.

Dr. Richard Urquhart Burges,

Of Norfolk, Va., a member of the staff of the Norfolk Protestant Hospital, died at his home in Norfolk, the latter part of September. He was about fifty-three years of age and a native of Southampton County, Va., though he had practiced his profession in Norfolk for about thirty years. After attending William and Mary College, he studied medicine at Medical College of Virginia, graduating in 1895, and became a member of the Medical Society of Virginia that year. He was prominent in the professional and business life of Norfolk.

Resolutions on Death of Dr. Burges.

WHEREAS, In the Providence of Almighty God, our friend and colleague, Richard Urquhart Burges, has passed from this life. Therefore, be it

Resolved, That the Norfolk County Medical Society has lost a true and worthy friend, and a conscientious co-worker.

That the membership of this society extends its heartfelt sympathy and love to his devoted, faithful and tireless companion.

That a copy of these resolutions be spread upon the minutes of this Society and be published in the daily papers.

NORFOLK COUNTY MEDICAL SOCIETY,

CHAS. W. DOUGKIE,

KIRKLAND RUFFIN,

E. C. S. TALLIAFERRO,

Committee.

Dr. Henry Rose Carter,

Assistant Surgeon General of the U. S. Public Health Service, and recognized as one of the foremost medical and sanitary experts of this country, died at his home in Washington, D. C., September 14, after a long illness. Dr. Carter was born in Caroline County, Va., seventy-three years ago. He first studied civil engineering at the University of Virginia, graduating in 1873, and later studied medicine at the University of Maryland, School of Medicine, receiving his medical diploma in 1879. After this he entered the U. S. Public Health Service, and continued constantly with the Service until his death. Dr. Carter inaugurated the present maritime quarantine system in this country and was intimately associated with Surgeon General Gorgas and Dr. Walter Reed throughout the greater part of their careers, particularly in their work in the study and control of malaria and yellow fever. Two sons and a daughter survive him. The interment was made in Ashland, Va., where he had spent much of his time.

Dr. Thomas McCormick Lippitt,

U. S. Navy, retired, of Berryville, Va., died suddenly, September 16, at the breakfast table, at the age of fifty-three. He was a graduate of the University College of Medicine, Richmond, in 1897, and was appointed an assistant surgeon in the Navy in 1898. Dr. Lippitt's bad health was due to a wound in the hip, which he received during the Boxer rebellion in China in 1900, while he and another surgeon were caring for the wounded in the British legation in Peking. He was promoted for conspicuous gallantry but was soon forced to retire on account of his injury. He was unmarried but is survived by a brother and several sisters.

Dr. Welton C. Williams,

Of Vienna, Va., died August 23, following a long illness. He was fifty-three years of age and a graduate in medicine from George Washington University, Washington, D. C., in 1899.

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DR. JOSEPH LEIDY, of Philadelphia, says: "The combination of Gelatine and milk in infant feeding was long used by my father and the late Dr. W. Pepper. I have continued to use it during the past thirty years, and am of the opinion that it gives results when many other combinations fail." (*Quoted by permission.*)

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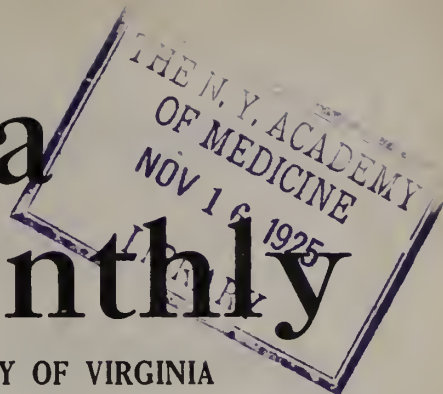
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OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 52, No. 8.
WHOLE No. 881.

RICHMOND, VA., NOVEMBER, 1925

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Original Communications

CONTRIBUTIONS OF OPHTHALMIC SCIENCE TO PROGRESSIVE MEDICINE.*

By HUNTER H. McGUIRE, M. D., Winchester, Va.

When, at your last meeting, you saw fit to confer the greatest honor which has come to me in my professional career, I took occasion to remind you that for the second time in the history of this organization you have honored a representative of ophthalmic science with the highest office within the gift of this Society. On a former occasion this distinctive honor was conferred on my first teacher in ophthalmology—a clinician whose work in this special branch has been an inspiration to the younger generation who have followed in his footsteps, and whose friendship and counsel have proven to be valuable assets to those who hold him in high esteem. Still in active practice, carrying on with the enthusiasm of youth, he bears the happy distinction of being the father of ophthalmology in Virginia and the youngest ophthalmologist in America. It is hardly necessary to say that I refer to an honored past President of this Society, Doctor Joseph A. White, of Richmond. Deeply appreciative of this evidence of your confidence, I expressed the hope that your action had been prompted by a desire, on the part of this Society, to give recognition to the great advances which have been made in that branch of medicine, which, in a very humble capacity, I have the honor to represent.

With this thought in mind, it has occurred to me that on this occasion it might not be inappropriate to speak particularly on some of the recent contributions of ophthalmic science to progressive medicine and to point out what these methods of precision in diagnosis have accomplished, not only in the ad-

vancement of this special branch, but in general medicine as well.

In departing somewhat from the usual type of presidential addresses, I am fully aware that I may be accused of breaking a long established precedent, which my distinguished predecessors in office have never set aside, of, in a large measure, eliminating scientific matters from the subject to be discussed, but I do feel that in this day of rapid progress, when the research worker and other investigators are untiring in their efforts to emphasize the scientific aspect of medicine, the chairman of an assemblage of this character can, with propriety, speak of some of the important contributions which one branch of medicine has been able to make in the development of the whole.

For a more or less indefinite period the physician who limited his activities to the diseases of the eye was, to some extent, expected to play a minor role in the larger developments of scientific medicine and, as a matter of fact, for many years, no contributions worthy of note were forthcoming from ophthalmologists to shed light in the solution of problems which the general profession had under consideration.

In fact, ocular diseases and abnormalities were, in a large measure, entirely dissociated from systemic medicine and the intimate relationship between the two had not been established. The ophthalmologist was, therefore, limited to a very small field of activity and he failed to receive that broadening influence which comes to those who, because of interrelated problems, are brought into more intimate contact in their professional life.

He lived in a little world of his own, segregated to some extent from his fellow practitioners, and his daily work was largely concerned with the correction of refraction errors and muscular anomalies. The many inflammatory affections of the ocular structures, so imperfectly understood, were, for the most part, thought to be of luetic or so-called rheumatic

*Address of the President before the fifty-sixth annual meeting of the Medical Society of Virginia, at Richmond, October 13-16, 1925.

origin, and therapeutic measures for their relief were made to conform to these theories. Bacterial invasion of the eye, so thoroughly studied in recent years, had been given little or no attention and ophthalmic surgery, because of its hazards and imperfectly developed technic, was only undertaken by a very limited number.

The human eye, so complex in its structure and so wonderful in its mechanism, was to a large extent, not regarded as a vital part of the human economy, but was essentially looked upon and treated as a separate entity whose pathologic phenomena were unassociated with and independent of diseases in other parts of the body.

But ophthalmology was not destined to remain an undeveloped science, and since the middle of the nineteenth century its history has been replete with outstanding achievements and notable contributions to medical literature. The inventive genius of Helmholtz and the far-reaching conceptions of von Graefe and Donders brought about revolutionary changes in this field of medicine. Then invention of the ophthalmoscope opened up a new world of study, and every branch of inquiry and investigation in the physiology and pathology and therapy of the organs of vision yielded a rich harvest. Ophthalmology quite outstripped its sister sciences. Among the disciples of this triumvirate many achieved renown. Liebreich, Zehender, Alfred Graefe, Herman Knapp, Leber and others have passed away, and the last survivor of this distinguished group was Julius Hirschberg whose death occurred in February of the present year. They have gone, leaving behind a precious heritage, but the blazing torch thrown from their arms has been caught up and its illuminating influence will continue to spread throughout the world.

In the last twenty-five years the trend of events in ophthalmological progress has been to promote and strengthen a closer relationship between ophthalmic science and general medicine, and in this effort America has taken no small part. de Schweinitz, whose contributions on the subject have been so illuminating, thus expresses himself: "Though fully alive to the importance of special development, it no longer casts its lines in narrow channels, but is increasing its range of action in co-operation and in association with the great system of

medicine of which it forms an important part."

In the conduct of his work, the ophthalmologist must of necessity be familiar with many of the problems which confront the internist, the neurologist, the pathologist and the general surgeon. His opinion must frequently be sought in the establishment of a diagnosis in diseases remote from the ocular region, and he, in turn, must seek the advice of his fellow practitioners in tracing out the etiological factors in diseases of the eye and the institution of proper therapeutic measures for their relief. In fact, the successful ophthalmologist must be a student of general medicine, and upon his knowledge of the subject will depend his usefulness to the profession and his fitness for his life work.

In no specialty of medicine are the preliminary requirements and the intensive training more exacting, and the great national organizations, zealously adhering to their purpose to maintain within their ranks a high standard of efficiency, will only admit to membership those candidates whose scientific attainments are without question and who have been granted a certificate as to their qualifications by a National Board of Examiners. I feel that the time is not far distant when, because of the exacting requirements of these national bodies, American ophthalmology will have reached a degree of accomplishment which will be unsurpassed throughout the world.

No less an authority than Wm. J. Mayo has recently said that "the great progress of science in the last generation has come largely through mechanical aids to vision which have permitted the concentration on scientific problems of the full power of human intelligence. I think that this statement very aptly applies to those more recent advances in ophthalmic science which have a special significance in the establishment of a closer relationship between ocular anomalies and general disease.

It may be said that the first real advance came in 1851 when Helmholtz announced his discovery of the ophthalmoscope. Up to this period, our knowledge of the interior of the eye in the living subject was as dark as the pupil itself. The normal fundus picture had never been seen, and the departures from normal, so important in the diagnosis of general disease, had not been considered. The first rather crude instrument of the reflecting type,

while epoch-making in giving us the first satisfactory view of the eyeground, has gone through a process of rapid development until today the electric ophthalmoscope with its perfected lens system, so familiar to all of us, enables one to study the interior of the eye with a greater degree of accuracy than in former years.

No one will deny, I believe, that ophthalmoscopy has given us a method of procedure in the investigation of general disease which has been of inestimable value. The internist and the neurologist who fail, in the study of their problems, to take advantage of the information it affords, cannot be expected to gain that well-rounded knowledge of their cases which comes to those who systematically study the eye-ground for manifestations of systemic disease. The early and late signs of general arteriosclerosis, as indicated by characteristic changes in the vascular system of the retina, the unmistakable evidences of hypertension in the form of hemorrhagic retinitis, the well-known fundus changes in renal and cardiovascular disease, the impressive and important picture of papilledema in brain tumor and more remote toxic conditions, the degenerative and inflammatory processes in the uveal tract suggestive of syphilitic and tuberculous involvement, the ocular phenomena dependent upon focal infections in the teeth, tonsils, nasal accessory sinuses or even more distant organs, and the associated ocular changes in diseases of the endocrine glands are only mentioned as well known examples of fundus manifestations which have an important value in the diagnosis and study of general disease. Without the ophthalmoscope, these important changes would never have been added to our knowledge of systemic medicine, and it, therefore, seems to me its discovery represents the first scientific contribution which ophthalmology has offered to progressive medicine.

The second stage of advancement is, in my opinion, represented by that period in which a much more comprehensive and intensive study of visual field changes has been undertaken not only in the solution of problems concerned with the function of vision, but in the detection of lesions in the optic tracts, the hypophysis and other parts of the brain. The science of perimetry has opened up a field of investigation which has been of untold value

not only to the ophthalmologist, but to the neurologist and brain surgeon. When it is recalled that the ophthalmoscope often fails to reveal minute changes in diseases of the anterior part of the visual path, as, for example, in beginning toxic amblyopia and forms of retrobulbar optic neuritis; that in disease of the visual path posterior to the chiasm, eyeground changes are late phenomena, and that disease above the primary optic centers may not be visible at any time by means of the ophthalmoscope, we can hardly fail to be impressed with the value of carefully practiced perimetry as an aid to diagnosis and prognosis.

The study of field changes in diseases of the pituitary body so fully elaborated by de Schweinitz, Cushing, and others, the enlargement of the normal blind spot in sinus infections, the visual field phenomena occurring in functional nervous diseases, and the significance of the various forms of scotomata, are only mentioned as emphasizing the value of this method of investigation.

When Gullstrand announced, a few years ago, his discovery of a new method of illumination by which it became possible to render the corneal microscope, an instrument discovered thirty years ago and long since discarded, a practical method of diagnosis, a new era was opened up in the investigation of ocular disease. Ocular microscopy or the examination of the histological structure of the living eye has been developed through the use of the slit-lamp, an apparatus designed by Gullstrand to render visible by means of a sharp bundle of light the cellular structure of the human eye. The method, while yet in its infancy, has been sufficiently developed to open up what might be termed a new field of ocular pathology, and constitutes the greatest advance in ophthalmic diagnosis since the discovery of the ophthalmoscope. The apparatus, as furnished today, so thoroughly familiar to ophthalmologists, but perhaps not as well known to the general profession, consists essentially of two parts: a binocular microscope supplied with several oculars and objectives for obtaining different magnifications, and the slit-lamp mounted on an adjustable double arm and capable of being swung in various positions in order to properly direct the beam of light on the eye and to illuminate the various structures as they are observed with the microscope. The

principle involved is that of increased visibility by extreme contrast, dark and light. When we observe a small beam of sunlight entering a dark room through a crack, dust particles in its path are rendered visible. The same principle is applied to the study of the human eye under a microscope. In Gullstrand's slit-lamp the principle of focal illumination reaches its highest development. We are able to project into the eye a powerful, clearly defined, ribbon of light, to modify the width of this beam, and to focus it at will upon any desired spot. By using a pin-hole, a pencil of light is obtained, which serves a useful purpose in the search for cellular elements in the aqueous and for accurate localization in the lens. The present instrument, as used with a highly developed technic in the various methods of examination, gives us an intimate knowledge of the histological structures of the cornea, iris, lens and approximately one-half of the vitreous body. When the bundle of light of the slit-lamp passes through the cornea and lens, optical sections of these structures are obtained, and the illuminated zones are no longer transparent but appear opaque. The light as it passes through the cornea more or less diagonally because of the angle of illumination, if in exact focus at this point, sharply demarcates this zone as if it were an optical cut section. In the lens a perfect optical section is produced, showing in cross section its capsules and the clearly defined nuclear surfaces. Studies of the iris bring out in an amazing manner interesting details of its structure with a clearness not obtainable by other methods of examination, while an investigation of the vitreous brings into view its supporting structure, its normal and pathological opacities, changes in density, and the remnants of embryonic vessels. The study of the circulation of the blood in the conjunctival vessels at the limbus or in newly formed vessels in the cornea, in cases of ulcer or pannus, brings to light interesting phenomena which have never before been observed. The actual movement of the red cells as they rapidly roll along in the lumen of the vessel is an amazing spectacle, and forcibly illustrates the far-reaching results which may be expected from this new method of investigation.

Ocular microscopy, as is being developed from the use of the slit-lamp, is destined to

play an important role in changing our viewpoint with reference to certain pathological problems in diseases of the eye and perhaps those of organs remote from the ocular region. The work of Vogt and Koeppe on the continent, of Basil Graves and Harrison Butler in England, and of Bedell, von der Heydt, and Gradle in this country, is bringing to light new and interesting problems in pathological research, the result of which has been to furnish a wealth of information concerning cellular changes in ocular disease and to give early recognition to many processes which, heretofore, have not been discovered.

The slit-lamp opens up such a wide field of investigation that it would not be possible to attempt to describe even a few of the many pictures it reveals of normal ocular tissue and of those departures from the normal which are only capable of being recognized under the microscope.

Ocular microscopy will not supplant other older and well-known methods in ophthalmic diagnosis which have stood the test for many years, but sufficient advance has been made to definitely assert that it represents one of the very important achievements of modern medicine, and those of us who have had an opportunity to investigate its merits are convinced that it is destined to play an important part in the future development of ocular pathology. Certainly the ability to study living tissue under the microscope should be regarded as an outstanding contribution to progressive medicine, and for this ophthalmic science stands responsible.

In thus summing up some of the important achievements of one specialty of medicine, my purpose has not been to detract in the least from the brilliant and outstanding contributions, for which the present generation has been responsible, in other branches of medical science, but I do feel that the general profession has failed, to some extent, to appreciate what ophthalmology has accomplished, and what an important link it has become in the great chain of special branches whose function is to hold in one unbroken line the truths which scientific investigation has revealed.

If scientific medicine is to prevail, if it is to withstand the assaults of quackery and the various cults, if it is destined to reveal the truth to a public disturbed and harassed by

pseudo-scientific propaganda, such a consummation can only be brought about through the co-operative effort of laborers in every department of medicine, and in this effort ophthalmology, with its sister sciences, is embracing every opportunity to lend assistance in the solution of problems of vital concern to the progress of modern medicine. Working together in a common cause, ever striving to establish, through increasing research, the unassailable evidences of scientific investigation, and with an abiding faith in the great principles for which our profession stands, the inevitable result must be the highest development of medical art.

105 North Braddock Street.

THE RELATION OF QUACKERY TO SCIENTIFIC MEDICINE IN VIRGINIA.*

By ISAAC PEIRCE, M. D., Tazewell, Va.

Not since the days of Mesmer, and the advent into Paris of one Hahnemann with his tall daughters, has quackery and humbug held such high carnival over the whole of the civilized world, and affected to so great a degree, both the literate and the illiterate, as at the present time. In the financial world, in business, in education, in the learned professions, in government, even in religion, and, we may ask, where it is that we fail to find these partners safely established and seemingly doing a thriving business!

Graft and fraud are so prevalent in all civil governments as to seemingly endanger the stability of our public institutions. In our own government, recent investigations at Washington have revealed such corrupt conditions in some of its most important branches as to cause thinking men to wonder how long the strain can be borne. If we make the most superficial survey of our immediate surroundings, our state and county governments, we are sensible of a most widespread disrespect for law and, at the least, great waste and carelessness in the handling of our public funds, not to call it by a worse name or to consider the number and ability of those engaged in the administration of government. Again, if we but glance at our financial transactions, we cannot fail to appreciate the fraud and abso-

lute worthlessness of much that is offered in the shape of blue sky stocks, and, what will surprise us most, is the extreme gullibility of the public to whom it is offered.

In this era of fraud and corrupt practices in all forms of business activity, in professional relations to the public, in government, even in the administration of justice extending to our very courts of law, and with a public showing such disrespect for law, such willingness to invest in "gold bricks" and with such mad desire to get something for nothing, it is a matter of no surprise that the medical profession should show a decided increase in "quacks," "shysters," "irregular practitioners" "cults," or whatever you wish to call the gigantic fraud that is being perpetrated on the public in the name of medicine and surgery. Several things conspire to make this true. The science of medicine, having originated in mysticism, struggled up through superstition, depending upon empiricism for its facts, and has only been able to call itself a science for comparatively a short time. Notwithstanding the immense strides made by medicine and surgery in the past fifty years, we are still far from exactitude in our knowledge of the cause of disease, and especially is this true of the treatment of even those best understood. Then, too, the human race in its early history regarded disease as punishment visited upon them by the Gods, the fiat of the Almighty, and it is not strange that much of the child, the savage, the superstition, and credulity should attend the afflicted of our advanced civilization. The history of the race indicates that reason and education will develop slowly, and that as long as superstition and credulity persist, just so long will the unscrupulous thrive.

Again, the requirements for medical education have rapidly risen in the past thirty-five years. At that time a young man could leave the plow, the carpenter's bench, or the factory, spend one year in the office of a physician, reading medicine it was called, and two years in a medical school, and be allowed to graduate and immediately begin practice. Now, almost all colleges and State boards of examiners require two years of pre-medical college work and four years of professional work, these being the requirements in Virginia. Twelve medical colleges have added a fifth year, to be spent as an intern in an ap-

*Read before the fifty-sixth annual meeting of the Medical Society of Virginia, at Richmond, in a public session, October 13, 1925.

proved hospital, and this is now required by twelve States. I may say here that many thinking men, both in and out of the profession, believe that we are going too far and too fast in raising the requirements for medical education. The Hon. William Potter, who has been chairman of the board of trustees of the Jefferson Medical College for many years and a close student of the subject of medical education, said, in an address before the alumni association of that institution at its centennial celebration last spring, "The board of trustees of the Jefferson Medical College will not advocate the further elevation of the requirements for graduation, nor will they recommend any further specializing in the practice of medicine." In discussing this subject with an eminent lawyer sometime ago, he recommended that a fifth year should be spent in the office of some general practitioner of medicine rather than in the hospital.

With the rise in requirements for graduation in medicine we find a decline in the number of medical schools, a decrease in the number of students, and an increase in the expense. From 162 medical schools in 1906 there has been a decrease to 80 in 1925—less than half. From a total of medical college graduates in 1904 of 5,747, there has been a decrease to 3,974 in 1925, this being an increase as compared with all years since 1913. In the last college year there were only 443 medical students in all schools in the United States from Virginia. The cost of a medical education in 1890 was from \$1,000.00 to \$1,500.00; at present I should say it would easily reach that amount per year, making the cost for professional training alone, from \$4,000.00 to \$6,000.00. We cannot blame the recent graduate for his desire for some immediate return from his investment, so that he enters the field of specialism, locates in the centers of population, thus depleting still further the rapidly thinning ranks of the general practitioner of medicine. This is especially true in the country districts where there is beginning to be felt a decided need of physicians. A few years ago the advertising pages were full of offers to sell practice and equipment. Now you find in every medical journal that physicians are wanted as hospital assistants, to locate in country districts, and as contract doctors in mines

and manufacturing plants. It is useless to look further for a cause to stimulate the cupidity of the unscrupulous in his desire to be admitted to the practice of medicine, without preparation, or at most so little that it is unworthy the name.

In studying the relations of quackery to scientific medicine, it will be well to review briefly the history of the former for the past few years. We were told at our last meeting by a representative of the A. M. A. that the medical literature of a hundred years ago showed the profession was beset with the same conditions and discussing the same problems as at the present time. The patent medicine fraud we have always had with us, and it is likely to continue with us from present outlook. The retail druggist has added to his ever-increasing list a well advertised line of private and secret formulary, remedies for every ill, which are sold direct to the consumer. Prior to 1885, the great bogey that was responsible for the doctor's loss of sleep was the homeopath, an importation from Europe. He came with a great blast of trumpets, chiefly his own, for his motto, "*similia similibus curantur*," and his stock in trade was a system of "dilutions," the more dilute the higher the "potency." The eclectic was another flourishing cult at that time. Both have become pretty good fellows at this time, though they, too, seem to be on the decline, with the advent of higher education and protective legislation, the homeopaths having two schools and the eclectics only one in the United States. The chief class of irregular medical quacks prior to the passage of the medical practice act was the partially prepared "doctors," men who had attended medical school for a short time, had been attached to the hospital or medical departments during the Civil War, or had taken up the practice of medicine without any preparation whatever. Each county in the state had two or three such men. Next in importance were the traveling quacks, men who appeared in the streets, in a buggy or on a goods box, sold patent medicines, eye-glasses, removed corns, pulled teeth, and gave all who came advice as to the nature and treatment of any real or imaginary disease of which he might be the subject. Another class traveled with a show, generally an Indian, and bought medicine di-

rect from the Indians—nature's remedies. The cities had so-called specialists who advertised cures for venereal diseases and sexual disorders. Occasionally one advertised a sure cure for some incurable disease, as cancer, epilepsy, etc.: you may recall the flaming headline, "I Cure Fits." In this state these people required only a license to vend a patent medicine, or to practice medicine, costing \$10.00. They led a precarious existence, their reward being usually small. Often the country quack practiced as a side-line to farming or merchandising. They were treated with contempt by the regular practitioners who refused to consult with or notice them in any way. Often they refused even to attend a patient who had previously been treated by one of them. Their existence was largely individual, as no form of organization existed among them.

Medical legislation in Virginia is of rather recent date. In 1831-32, an act was approved against the sale or administration of drugs by slaves; in 1847, against the administration of drugs to produce abortion. I can find no law requiring even a license tax against physicians or surgeons prior to the Civil War. The code of 1873 shows that an act had been approved levying a specific license tax of \$10.00 on physicians and surgeons. This legislation must have been an effort at regulation, as it is difficult to believe that any legislative body could have been guilty of so unjust an action as the levying of an occupational tax against any class or group of our citizens, simply for the purpose of increasing the public revenue. No political economist or legislative body has ever been able to successfully defend any law taxing the right of any individual or group of individuals to obtain a living by the pursuit of any honest endeavor, certainly not so poorly remunerated a profession as that of the practice of medicine.

It was not until the legislature of 1883-4 passed an act creating a state board of medical examiners that anything like real regulation of the practice of medicine and surgery was attempted in Virginia. It would be interesting to review carefully the vicissitudes of the birth and growth of the laws, both national and state, which have developed in the past forty years, but I can only mention a few of the most important changes which have attended the evolution of our own

state law. The laws of 1883-4 did little but provide the machinery of an unwieldy board of medical examiners, providing for three members from each congressional district and two for the state at large, of the regular medical profession, and, in addition, five homeopaths from the state at large. Thus, we had, in the very beginning of medical legislation, engrafted upon us what was at that time regarded as the most dangerous of all the irregular practitioners of medicine. This law provided that any person assessed with a license tax prior to 1885 shall be considered to have commenced the practice of medicine and was therefore exempt from its provisions as to examination. This bill was re-enacted and amended by the legislature of 1885-6, and again in 1894. In the act approved January 23, 1894, we find that all persons who have practiced continuously for five years previous to this act are exempt from its provisions, thus raising the time limit from 1885 to 1889, and allowing any irregular who had failed to take advantage of the first limit to come in under the second. This act also changed the number of members of the examining board to one member from each congressional district, two from the state at large and two homeopaths, and makes the first attempt to define the term "Practice of Medicine and Surgery:" "Any person shall be regarded as practicing medicine or surgery, within the meaning of this act, who shall profess publicly to be a physician or surgeon, and shall offer to practice as such, or who shall prescribe for the sick or for those needing medical or surgical aid, and shall charge and receive therefor money or other compensation, directly or indirectly." This law has been re-enacted and amended variously until the present time, the most important changes being the increase in the requirements in education of applicants for examination, the admission of the osteopath by giving him a member on the board, the admission to practice of a cult known as chiropractors who were practicing in the state prior to 1913, and the passage of the poropathy act of 1918. The energy of the patron of this latter bill to serve his constituents and benefit suffering humanity is only equaled by that of one of his colleagues in the state senate who insisted upon holding up important health legislation until he secured a special provision setting up the time

limit imposed upon irregulars ten years in order that an old chap in Buchanan county be allowed to continue practice.

The legislative committee of this society and the gentlemen who have been active in perfecting our present law to regulate the practice of medicine and surgery, are justly proud of it, for it represents much hard labor. The passage of any really progressive legislation seems to be almost an Herculean task.

In the study of this matter, I appealed to my friend, Dr. J. W. Preston, Secretary of the State Board of Medical Examiners, than whom there is none better posted upon the question of medical legislation and irregular medical practice in Virginia. I thank him for the completeness of his reply, and give his letter in full:

August 28, 1925:

"DR. ISAAC PEIRCE,
TAEWELL, VA.

"MY DEAR DR. PEIRCE:

* * * * *

"In reply to your first question as to how many irregular practitioners there are in the State, I have to advise that in the matter of homeopaths and osteopaths, while each is examined upon the practice of his sectarian school by their respective representatives on our Board, homeopaths have always been issued the same certificates admitting them to practice medicine the same as regulars. Osteopaths are granted certificates entitling them to practice osteopathy only, except in such cases as under the ruling of the Attorney-General we have been compelled to admit to examination upon materia medica and therapeutics and allow the practice of surgery in addition to osteopathy, but such certificate does not give them authority to practice medicine.

"Relative to the composition of our Board. I have to advise that there is one regular practitioner from each Congressional District, ten in all. In addition, there is one homeopath and one osteopath, this in accordance with Section 1608 of the Medical Practice Act, herewith enclosed.

"Now as to the number of homeopaths and osteopaths entering the State, it probably will be of interest to you to know that since the enactment of 1916, which has required graduates of all schools, sectarian and otherwise, to meet the same requirements as to time of study

and examination as relates to pre-professional and professional training, that is to say, two years of pre-professional and four years of eight months each in separate calendar years professional training, and likewise requires them to take the same examination upon the fundamental branches, the number applying for certificates to practice in the State has become almost negligible, not to exceed on an average I should say three to four osteopaths a year and perhaps not over two homeopaths a year.

"Relative to the cults, the chiropractors are the only ones giving us any trouble of consequence; occasionally someone claims to practice naturopathy in some part of the State but, as a rule, they also claim to practice chiropractic.

"Now as to the number of chiropractors in the State, by reference to Section 1618, page 8 of the statute, near the bottom of the page, you will observe that there was an enactment in 1913 admitting all chiropractors who were then practicing in the State to continue to practice without an examination. Of these latter, there are registered in the State at this time thirteen, each of whom holds a Verification Certificate. As to the number practicing illegally in the State, there is no way by which we can know definitely, since, as you doubtless know, they have for the past four years been making strenuous efforts to get an enactment which would either give them their own Board or put a member of their cult upon the Examining Board, at the same time legalizing all who could show any claim of having practiced in the State prior to such enactment. It has seemed to be the wish of their organization to get as many into the State as possible so that, when such enactment as they desire might be obtained, each would be admitted to a certificate as here stated. We have definite information that the chiropractors have been pressing an active campaign among the candidates for the various offices before the recent primary, laying a foundation for their fight in the next legislature.

"Now, relative to the trials of chiropractors which have taken place in the State within the last two years, they are as follows:

"One in Winchester in which the proof was positive. Instructions to the jury fair. Verdict returned by the jury. 'Not guilty.'

"One in Staunton. Conviction. Party left the State.

"Three in Roanoke. All the same party. In the first two trials convictions were obtained. Fines were paid by the National Chiropractic Association. Party continued practice. In the last trial, about the first of this year, proof was positive. Instructions to the jury were fully in accordance with the law. Verdict 'Not guilty.'

"One in Richmond last month. Party was convicted and placed under bond of five hundred dollars. Have not heard the final outcome.

"It will probably be of interest to you to know that there seems to be a feeling upon the part of the public throughout the State that chiropractors are oppressed and treated unfairly, which feeling doubtless has to do with the reluctance with which prosecuting attorneys undertake to prosecute these cases, and also from the fact that juries almost invariably impose the minimum fine, if any. Because of these things, together with the fact that it makes little difference to a chiropractor whether he be convicted or not since the expenses of his trial and his fines are always paid, as above stated, by their associations, back of which doubtless is their school from which emanates this propaganda, many of the physicians of the State who have observed the situation are coming to feel that, except for the more aggravated cases, it is a question if the advertisement, which above all things they desire and which they obtain through a trial, may not do them more good than harm.

"Relative to your question as to whether there is an increase of irregular practitioners in Virginia, there is no doubt but what those who have been required by the statute to properly prepare themselves to practice, as set out above, are on the decrease. On the contrary, chiropractors, who have been pushed in by their schools and by their powerfully financed organization, have been on the increase, but my personal opinion is that they have now about reached their zenith, unless they are able to secure some special legislative act which they now claim to have in twenty-eight other States.

"Finally, coming to analyze the whole situation, I personally feel that, while we will always have some form of cultism springing up

one after another, the final solution will be that the medical profession will come to pay more attention to minor complaints and recognize that there is almost invariably in chronic diseases of all types a "disturbance of the mentality as well as the physical make-up; likewise, that in all patients in whom vitality and circumstances are not such as to admit them to take their accustomed physical exercise, any manipulation which in a measure gives them exercise, active or passive, tends to a feeling of well-being, and is perhaps a greater agent than we realize in inspiring hope and encouragement. I believe also that medical schools and hospitals as well as general practitioners must eventually come to consider these things more seriously than at present, and that a greater number of mechanotherapists and technicians must be trained who will act under the direction of medical practitioners who are not willing to do more of such work themselves.

"With kindest personal regards, I remain,
Yours very truly,

J. W. PRESTON."

Dr. Preston gives us a clear statement of facts and an accurate picture of present conditions as to three of the leading cults. He does not, however, mention the one which has grown with greatest rapidity and deserves to reach the height of quackdom, as it is pure bunk, out of the whole cloth. I refer to the followers of Dr. Albert Abrams, the most outstanding quack of the century. The author of the "divining rod" for disease, and the "electronic reactions" as a remedy, in a very few years became a millionaire, and from the press reports of his death you would have thought the father of medicine had passed to his reward. What Dr. Preston does show is the high degree of organization these people have attained. Witness further the recent meeting of "The American Association for Medico-Physical Research" at its fourteenth anniversary in Chicago, September 21-26. From the list of speakers it seems to have included Abramites, osteopaths, and chiropractors alike. From the beginning of legislative regulation of medicine, both national and state, we see a gradual growth in the organization of quasi-medical endeavor. First we had "Christian science," "evening light," "Holy rollers," and a host of other divine healing organizations, all of whose lead-

ers practiced medicine in the name of religion, this being the easiest and quickest way to evade the law. Then we have had, in rapid succession, osteopaths, chiropractors, Abramites, poropaths, naturopaths, and other medico-physical operators who have all practiced medicine in open disregard of law until they were able to find some friendly legislature who would consent to nullify any medical practice act by either giving them special privileges or engrafting them on to the regular medical profession. The latter has been the practice in Virginia, with the exception of the poropath. The homeopath, the osteopath, and the chiropractist have all been fastened upon us by law; why not the chiropractors, the Abramites, or any other fraudulent clan who may enter the twilight zone of medicine and perfect an organization strong enough to influence legislation? Dr. Preston is too optimistic in his conclusion that the cults have reached their zenith at the present time. With their present complete organization and propaganda they must increase both in numbers and strength. I cannot fully agree with Dr. Preston in his belief that the general practitioner is failing to recognize the value of sympathetic encouragement, or the important part played by suggestion in dealing with the mentality of diseased conditions. Nor is the general practitioner ready to agree with Dr. Preston that we have lost sight of the value of exercise in restoring health. We may, however, advise a pick or a shovel instead of an osteopath or a chiropractor. There is no better adjuster of spines than a post-hole digger or an old fashioned churn.

Any law regulating the practice of medicine, or the practice of anything else, has but one object: The protection of the public from fraud. No law, either national or state, has been able to do this to any great degree. We had great hope that "the pure food and drug act" would greatly relieve the patent medicine evil. It changed the label on the bottle. The Harrison law has done much to rid the nostrum of its danger from narcotic content, but is far from the great success we expected; especially is this true since the increased revenue levied in its name is rapidly taking the trade out of the hands of physicians and druggists and turning it over to an organized system of bottleggers.

Our own state law, I believe, can be shown

to be rapidly creating a scarcity of scientific practitioners in the state, especially in country districts, depriving an increasing number of the right to medical advice in the restoration and preservation of health, creating a demand for, and fostering the further organization of, the fraudulent practitioner, and, by the close association and competition with such cattle, doing great injury to the scientific practitioners of medicine.

I blush to admit it, but the greatest enemy to scientific medicine today is within our own ranks. Needless to say, I refer to the large class of practitioners who are using all kinds of questionable proprietary concoctions, sera, organic products, and glandular extracts, which have not been proved to have value, and of which they know nothing, either of the action or administration, save that furnished by the manufacturer who is often a prince of quacks in his line.

"Vice is a monster of so hideous mien,
That to be hated needs but to be seen;
But seen too oft, familiar with its face,
We first endure, then pity, then embrace."

Now as to the remedy: It would seem that further legislation is but a waste of time. That was the opinion of our legislative committee two years ago. I think, however, that our present law could be improved, first, by enlarging the present definition of practice of medicine to include any person claiming to have sufficient knowledge of human functions, either mental or physical, as to be able to diagnose diseased conditions and give advice concerning them. This definition should be made so plain that there could be no doubt as to its meaning, and so comprehensive as to include all persons attempting to cure, heal, treat, diagnose, or give advice concerning diseased conditions, or their prevention.

Second: All candidates for the right to practice medicine should be required to meet the same conditions as to education and examination. Examinations should include, in addition to the essential branches of medicine, the pathology and symptomatology of disease, and the laws governing the preservation of the public health. There should be no exceptions here.

Third: The medical profession should unite with the people in asking that our legislators separate medicine as a science from medicine as fraud, to refrain from passing laws increas-

ing the requirements for practicing the science of medicine and surgery, and then defeating their operation by engrafting exceptions and special acts admitting all manner of quacks, even though they are dignified by the term "sectarian medicine." If our legislature deems it wise and necessary to enter a partnership with humbug and fraud in the interest of the public health, let it be done independently, not at the expense and in the name of scientific medicine.

The organized profession should stop its fight on these people. Dr. Preston is right in his conclusion that the public cannot realize the altruistic character of the bitter fight we have been waging upon them in the past few years, and are becoming more and more convinced that it savors of persecution and unfair treatment. He is also right in his suggestion that the more they are fought in the courts the more free advertising they get. They had better be left to the attention of common-wealth attorneys and grand juries who may awake to the fact that the law should be enforced in the interest of public welfare and not in the interest of the medical profession. Scientific medicine needs no law to protect it from the practice of quackery.

I have, now, a remedy to propose for the cure of our ills, which at first sight may seem so Utopian as to partake of the Quixotic. I claim no novelty for the suggestion I have to offer, nor can I do more than outline it in this paper. For many years there has been a growing tendency to make certain branches of medicine a public function. Our national government is maintaining successfully three large medical organizations, the army, navy, and public health departments. All states have been, for many years, operating hospitals for the care and treatment of mental disease. In this state we have added to our four large asylums an epileptic colony, three sanatoria for the treatment of tuberculosis, and at least one large hospital for the treatment of general disease. In addition to preventive measures, our State Board of Health has added the treatment of crippled children, clinics for examination, and advice for the tubercular, throat, ear, and eye defects; teeth are examined and filled, pathological material examined, and other activities, tending towards free, or partially free, medical advice. This work has not proved the success

that should be expected of it, from the simple reason that it has not had the united and unqualified support of the medical profession. So, I believe, it is an absolutely sound suggestion, that corrective and preventive medicine be combined into one great system of public medicine. I believe that every argument used for public education will equally apply here, even to the advantage of public medicine. Of what advantage is it to educate the mind and fail to teach the pupil to live? Why cure or prevent one disease and leave the patient exposed to all others?

I have only mentioned here a few of the activities at work toward making medicine a community function in our state. In support of my suggestion, I point to an example from the industrial world. Railroads, manufacturing plants, mines, and almost all large employers of labor have, for many years, been taxing each employee a small monthly fee to provide medical attendance, and are adding hospital advantages. In some instances, sanitary and preventive measures are being advocated and carried out. This system is working well and has become one of the necessities of industrial life, popular alike with employer and employee. When big business adopts such a plan, it will usually be found to be the best. Further, I wish to quote from an article in *Collier's* for September 19, 1925, entitled "Your New Doctor," by Dr. Royal S. Copeland, United States Senator from New York.

"The old family doctor has served his day and generation well. When he goes, and in course of events he will go, he will not be succeeded by the new family doctor. His work will be done by the health counselor, who will wear the same M. D. behind his name, although its meaning will be different.

"The doctor of the future will be a practitioner of preventive rather than corrective medicine; he will be paid and expected to prevent sickness rather than to cure it. Medical training of the most enlightened kind is pointed that way. A well-known teacher of preventive medicine once said that hygiene, the science of preventive medicine, has long been the Cinderella of the medical family. True. The effect has been that the average physician has failed to see as clearly as he should that he has a part to play in public health organization; that he is expected to support local

authorities by co-operating with them in all intelligent movements for the elimination of disease; that the practice of medicine is an important community function; that private health is public business."

* * * * *

"It will not be enough for the doctor of the future to be able to read the surface symptoms and prescribe medicine to that reading. He must know how his people live, what is wrong with their manner and method of living, and how the wrong thing can be righted. He will know that, in preserving health, modern sanitation goes further than old fashioned sympathy. The work in lecture-rooms and laboratories of the medical student of today, who will be the doctor of the future, will be supplemented by practical experience in the field."

We have been talking for years about paying the doctor to keep us well; let us now proceed to do it. When accomplished, it will mean, for the taxpayer, that he receives 100 per cent efficiency in the administration of his medical needs, that he will be investing in the best kind of health insurance, that he would not only be providing "Life-Extension Examinations," but life extension in reality. To the science of medicine, it would mean the bringing of order out of chaos; system and unity of purpose would supercede difference of opinion and professional jealousy: it would receive the greatest impetus of the century toward making it the exact science it should be. To the fraudulent in medicine, it would sound the death knell, the quack would die before he is born! To the practitioner, it would mean—but let us wait and see what it would mean to him. He may be against it, and if he is, he deserves little. I can only hope that when the people of Virginia awake to their best interests and make the practice of medicine a community function, the profession of medicine and surgery will be in line with the movement and ready to accept the inevitable.

RACIAL IMPROVEMENT.*

By W. A. PLECKER, M. D., Richmond, Va.
State Registrar.

The subject of this paper should be of interest to every physician, not simply because he is a physician but because he has intimate

knowledge of the truths brought out, and can discuss intelligently the problem and its remedy.

The purpose is to consider only racial conditions in our own country, both because it is distinctively our own problem, and because the world itself will be greatly influenced by our success in handling the problem in its various ramifications.

All will readily admit that no nation ever had a more auspicious beginning and that none in three centuries ever attained an equal degree of success and prosperity.

That has been made possible because of the extent and marvelous resources of our country. These natural advantages are only secondary, as is shown by the complete failure of the savage aborigines to develop them or to make other use of this immense area than as a great hunting preserve, with only villages and small tracts of cultivated land scattered here and there.

This great country would have remained forever dormant had not settlers of a different type come to its shores, representing the best that northern Europe could offer.

America was claimed by the great Nordic race as its final and chiefest possession; as the great haven of refuge from religious and political persecution where the most hardy, most enlightened and best equipped of Europe's peoples could establish a great country for their race.

Starting with this idea, they refused to mix their blood with the savages of the land, as did the Spanish and Portuguese to the south of us.

As settlers poured in from the homeland and others born in this new world became adults, their frontiers were extended and the original savage dwellers were crowded back and back.

INTRODUCTION OF THE NEGRO INTO AMERICA.

Then was made the fatal mistake of introducing into their midst and into their very homes, other savages, many being recently cannibals from the west coast of Africa.

These submissive laborers seemed a Godsend as aids in the great task of developing a new continent. None for a moment dreamed that these docile blacks were a danger a hundred

*Read before the fifty-sixth annual meeting of the Medical Society of Virginia, at Richmond, in a public session, October 13, 1925.

times greater than the savage Indians with tomahawk and scalping-knife.

It was the very docility of these slaves, coupled with their lack of morals, inherited from ancestors through many generations, and continuing to a marked extent to the present day, that constituted the real racial peril of the whites.

Though sentiment at first was strong against the whites who so far forgot their own self-respect and their duty to their race as to mix their blood with that of the blacks, intermixture went on. Instead of the morals of the blacks becoming raised in the presence of the whites, the opposite occurred, and it ceased to be an odium for young men to become fathers of mulatto children. In fact, such acts became to be looked upon as a matter of fact, and as a joke.

The result has been that we have raised in our midst a new third race of mulattoes and near-whites who, though without reason, consider themselves superior to the true negro. The highest ambition of many of these is to be classed as white and to marry whites.

In former days before the enormity of the evil and its bearing upon the future of the white race were realized, the law recognized as white and permitted or actually required a person of one-fourth negro blood to marry into the white race. The per cent was afterwards raised to one-eighth, later to one-sixteenth, and finally the Virginia legislature of 1924, as said by Major Cox, took the most advanced step taken within four thousand years, and declared that a white person is one "who has no trace whatsoever of any blood other than Caucasian," and that a white person shall not marry one with any trace of colored blood.

One serious defect, however, which is giving an immense amount of trouble, crept into the law. In order to provide for several families of whites with some outside Indian admixture, it was made permissible to admit as white a person of one-sixteenth Indian blood if he has no other mixture than white. The result has been that there are springing up all over the State families, and groups of families, mulattoes, who are claiming to be of Indian-white descent unmixed with negro.

Some of these mulattoes, either with or without a trace of Indian blood, have, by persist-

ently advancing this claim for a generation or two, caused unthinking whites to accept their claims, and even take part in putting across this great fraud and imposing it upon the white race.

This action, however, is of quite recent origin, as the racial composition of these people was well known to, and recognized by, both whites and mulattoes, until a few years ago.

This whole subject is thoroughly discussed by Prof. John H. Russell in his book, "The Free Negro of Virginia," published by the Johns Hopkins Press. The U. S. Bureau of Ethnology, and various old histories of Virginia also clearly show that there are no longer any native Indians free from heavy negro admixture.

A letter from Dr. Charles B. Davenport, of the U. S. Bureau of Ethnology, advises us that the tribe of "Indians" on Long Island has been declared no longer to exist, owing to similar negro admixture.

The fate of our Virginia Indians who have thus lost their identity, except in name, points clearly to what we may expect to happen to the white race, unless united, determined, and radical measures are adopted while it is not yet too late.

That the process of amalgamation is progressing with great rapidity is a matter of common knowledge. This, of course, is chiefly out of wedlock, but the Bureau of Vital Statistics is in possession of ample facts to show that there are today in Virginia a large number of families of which the heads are of different races.

Even since the new law became effective, although the county and city clerks have been diligent in the enforcement of the law, marriages have occurred between whites and those of negro descent.

Abraham Lincoln foresaw the danger and repeatedly advocated in his speeches and writings the necessity for separation of the races by returning those of child-bearing age to their home in Africa. Virginia herself inaugurated this move during the days of slavery by making provisions for the return of the freed negroes to Africa.

Major Earnest Sevier Cox, perhaps the best authority on this subject now living, in his book, "White America," and in all of his speeches and writing, lays down the positive

statement that there can be but one of two solutions to the race problem—separation or amalgamation. Marcus Garvey, the great negro leader, succeeded in building up an organization of several millions of negroes, a prime object of the organization being to found a negro State in Africa.

As three millions, or about one-fourth of the negroes in the country, are mulattoes or near-whites, they constitute a strong political faction.

They constitute also a living example of what we may expect in the future when amalgamation has become complete.

The most urgent need in slowing up this process is for the nineteen states and the District of Columbia, which now permit the free intermarriage between the races, to adopt adequate laws for the prevention of this monstrous wrong.

The Virginia law needs strengthening, and we need one making it a felony for relations to occur between the races when marriage is not permissible.

A law also making the fathers of illegitimate children responsible for the expenses of the mothers during confinement and of the maintenance of the children for fourteen years, would have a deterring effect upon race intermixture.

IMPROVEMENT WITHIN THE RACE.

We come now to the second phase of the question, which is that of raising the standard of either race—white or black—within itself. While this will be discussed from the standpoint of the white race, the same principles and rules are applicable to the others.

Improvement will be based upon two general principles:

1. Securing an adequate birth-rate from the superior class.
2. Discouraging or preventing a high birth-rate amongst the lowest types.

Our country possesses an abundant supply of everything needed for our prosperity and growth, except of the superior class of people and an adequate increase of these by birth.

From the early settlement of our country up to recent years the ratio of increase of the superior class has always kept pace with that of the inferior, and we have never been lacking in great leaders upon whom real prosperity and advancement in civilization depends. This

has been due to the fact that there was no great difference in the birth-rates of the two classes, and the law of natural selection, working chiefly through a differential death-rate, has affected the least capable and least fit.

In the days before we possessed organized charities to assist the unfit, and before knowledge of preventive medicine prevailed generally and was adequately applied, the infant and child death-rate as well as the birth-rate of this class was high.

The insane and feeble-minded were neglected or harshly treated, and either died, or were not temporarily restored or given forced training, and turned loose upon society to propagate their kind, and pass on to posterity a type of germ-plasm that, for race betterment, could well be spared.

Capital punishment had not become unpopular for crime, and the most dangerous types of criminals were not sentenced to a few years imprisonment with the prospect of having even that sentence cut down, and of being paroled or pardoned, to go forth and breed more of their kind.

Customs and laws worked then toward race preservation and improvement, and not for the coddling and increase of the undesirable and dangerous classes.

It is right to be humane and charitable, but this spirit can be so directed as not to extend to degenerates the privilege, either in or out of wedlock, to propagate others of their kind—a burden and a menace to society.

The introduction of the negro into America in 1619, twelve years after the first white settlement at Jamestown, and the subsequent intermixture of the races, was the first, greatest, and most destructive force threatening our civilization.

THE WAR BETWEEN THE STATES.

Next in importance to the importation of the negro was the war between the States. In this great fratricidal struggle Virginia and North Carolina lost about 40 per cent of their choicest young men, while other Southern States were not far behind. In Vermont, Massachusetts and Connecticut the loss was almost as great. The loss, as is the case in all wars, was selective, taking the best, including those who were the hope of the Nation for its future leaders.

While our best were laying down their lives freely for their ideals, the lower fourth, who now produce half of the increase by births, naturally untrustworthy and unfit for duty at the front, either skulked at home and escaped, or, if drafted, were assigned duty as teamsters, or as manual laborers, always in the rear and away from danger. These returned home to breed their kind, while 40 per cent of our noblest young women either lived and died without husbands, or wed their social inferiors. Women have been known to apologize for their husbands, saying that they took the best that were left.

Can anyone doubt the disastrous effect of this catastrophe from an eugenic standpoint, or does anyone believe that our present race is what it would have been if we had escaped this great loss? The brave women of the South heroically took up the task of repopulating their land, without a thought of self or of shirking their duty to their race and their State. The horrors of reconstruction and adjustment to changed conditions were safely passed through. The rule of the carpet-baggers and their negro allies was thrown off, and the former leaders or their sons were again at the head of business and government.

RACE SUICIDE.

All was going well until the third great race-destroying force began to spread abroad, and is already threatening to stop the production of our leaders and other desirable elements of the population.

This destructive force has been correctly styled "Race Suicide," though the leaders in the movement prefer to designate it as "Birth-Control," or the still more euphonious term "Voluntary Parenthood." Like war, this evil is selective in its diabolical work, and reaches chiefly, or only, the best.

We have already reached the point in our cities where people of wealth, education and ability are restricting their families to one or two, rarely three, children. Seldom do we find heads of families who follow the example of their parents or grandparents and show their patriotism and love for their State and race by producing six, eight, ten, or twelve children as was the custom in the recent past. The habit is spreading to the rural sections of Virginia and the white birth-rate of some whole

counties is only two-thirds, or less, that of the blacks. When we consider, further, that the white birth-rate includes those who add no real strength to our population, we can easily realize that the loss in country as well as in city is from the class of well-to-do families to which we look for future leaders.

Let us turn now to the other side of the picture. I was in New York four years ago when this race suicide movement held its first conference at one of the city's most exclusive hotels. I attended all of their meetings, including the one for physicians only, when methods were revealed. The audiences were composed of women handsomely gowned and showing other evidences of wealth. The propagandists related in the most pathetic manner sad instances of poverty stricken women with large and increasing families to whom they wished to give birth-control knowledge. One of the speakers admitted, however, their inability to reach these, because this class consists largely of immigrants whose religious leaders forbid this practice. The Mormon church in the West likewise makes the raising of large families a religious duty.

At present the situation is that in the Northern States, New England in particular, the birth-rate of the native American stock, descendants of those who landed on Plymouth Rock, has declined at a woeful rate, while that of the recent immigrants, composed of an entirely different type of people, is far ahead.

In our own State the negro rate continues high, as does that of our poorer white people, and particularly the very lowest strata comprising the feeble-minded, criminal and other undesirables. It is this class which is holding up our white birth-rate, and making the situation seem better than it is. We learn from a study of the birth certificates reaching our office that in these families the old custom of rearing from six to twelve or more children still prevails. The race-suicide teachers have failed to reach this class, and perhaps will always fail.

If this situation continues unchecked for even one or two generations more, there will be a great shortage in the upper and middle classes, and the population will of necessity be of a far lower type. These will be unfitted by inheritance for leadership and for sustaining our present standard of civilization.

New leaders of low ideals and selfish purposes will spring up from this new element of native stock and from the ranks of the recent immigrants. Some of the most dangerous of these foreigners have already secured a strong foot-hold in our land and, in spite of law and efforts of the police, are spreading abroad their propaganda of destruction, even in our universities and colleges. The American Defense Society, 154 Nassau Street, New York City, will supply information on this subject to those who desire it.

When race-suicide shall have brought us to the point that we are lacking in those who are true leaders by inheritance, the downfall of our civilization will be in sight. Racial pride will disappear, and then complete amalgamation of the whites with our present twelve millions of negroes will rapidly follow, beginning at the bottom and working up.

Our splendid natural resources will not save us, and America will go the way of Egypt, Greece, Rome and other great empires.

This is the dark side of the picture, but the case is not hopeless.

Major Cox offers the solution for the race problem, that of Lincoln, whose untimely death prevented from becoming a reality, his plan of returning the negro to his native land.

Meanwhile our upper and middle classes must be impressed with a sense of their individual responsibility to set aside their own selfish and indolent desires, and to realize that it is their religious and patriotic duty to do their part in saving their race and country. To do this, four children to a family must be set as the minimum, while those of the best, most healthy and long-lived stocks, must accept as their duty the task of raising families such as their grandparents had.

A few cases will arise in which, for physical or other good reasons, child-bearing might be undesirable, even in families of the best type. In all such cases physicians can give the necessary advice, and should alone decide the question.

The State itself should interfere and prevent by restraint or operative measures, increase of feeble-minded, hereditarily insane, epileptics, and perhaps other types. Long terms of imprisonment of dangerous criminals who escape the electric chair is an eugenic measure of high value, as such traits are apt

to be passed on to their children, if they are freed and permitted to live in marital relations.

Judge Olsen, of Chicago, in a recent address before the State Health Convention, summed up his study of this question in the statement that the criminal instincts are 92 per cent inherited and 8 per cent the result of environment.

THE PROBLEM OF RURAL MEDICINE.*

By F. H. SMITH, M. D., F. A. C. P., Abingdon, Va.

At the outset of what I am to say to you tonight let me confess that I am in a dilemma. I realize that I shall be quite remiss and false to my sincerest feelings if I shall fail to convey to you in some convincing way my heartfelt appreciation of your graciousness in selecting me for this office. And yet I find, when I attempt to express my gratitude, words have failed me utterly. Each attempt has seemed to me more trite, more stilted, or more hackneyed than the others. May I not leave it just as it is, relying on your sound judgment to know that no one could be so callous as to fail to appreciate such an honor bestowed by his fellow practitioners?

One could not have been at the head of an organization of physicians of Southwestern Virginia for a year without having had impressed upon him two facts: First, we are distinctly fortunate in that the physicians of this section are nearly entirely of the same stock, if not actually native-born Southwestern Virginians. We speak the same language; we have the same ideals, the same standard of ethics; we think the same thoughts. We can understand each other. We are of a family, as it were, of which we can be proud and whose traditions we take pride in maintaining. Then, we are fortunate, we whose practice takes us over and through the hills and valleys of this country, in the land in which we live. We do not half appreciate what a beautiful region this is; nor do we often stop to be thankful for our amazing freedom from all of those catastrophes which afflict other countries and other parts of our own country. How welcome and happy, then, was the choice of this grand mountain top, by the side of one of Nature's marvels, Mountain Lake, for

*Address of the President, Southwestern Virginia Medical Society, Mountain Lake, Va., August 27, 1925.

the place of this meeting. Truly, we physicians of Southwestern Virginia have reason to be grateful that our lines have fallen in such pleasant places.

Something is demanded of us in return for all of these privileges. To whom much is given much shall also be required. This demand and the complexities attending it is my theme tonight.

Early in the struggle for health man used what emerged, and has been recognized, as the profession of medicine. This recognition was bestowed worthily, for from time immemorial the physician has been the trusted guardian of man's health. Be it said to the credit of the profession that, through the centuries, the physician has been reasonably true to the trust committed to him.

Perhaps it was only natural that the trust reposed in the physician as the sole guardian of man's health should have developed in him the tendency to think of himself and of his work as things apart. There was a time, certainly, when mysticism, possibly fostered by the healer, together with the services he alone could render, set the doctor on a plane above the people.

Now, during our brief generation, times are changing and men with them. Men are not as complacent as they once were. They are becoming more inquisitive and the profession more frank. Everything, everywhere, is in a state of flux. The social order is changing; business relations, political foundations, even religious tenets themselves are being challenged. In it all we discern a movement toward socialism. How far it will go, who knows! But no one will contend that the *status quo* of the medical profession is inviolable.

An evidence of the changing relations toward the medical profession is the public's loss of implicit confidence in the family doctor. The layman is no longer bound to his old physician by the former ties of gratitude and affection. He is frankly trying out experiments of his own. He goes to whom he pleases. He goes to seek out a specialist, as he calls it. With no guide in his choice, he may succeed in his search. Or he may land in the office of a self-styled specialist, little better than the quack. Or, perchance, good luck leads him to a genuine consultant whose

charges the patient appreciates as a compliment, doubtless, but finds himself unable to meet. His reaction is unfavorable to the whole profession. He turns to one of the cults, irregular practitioners as we complacently call them. But he can find no abiding faith in them.

Baffled, the public is turning to state medicine, though it may not be called that. Hence come the demand for so-called health insurance, the invitation to extend the work of the boards of health, the organization and promotion of societies to prevent this, that and the other. The public is frankly dissatisfied with what it is getting out of the profession of medicine, at least that part of it within the individual's means to pay.

Paradoxical as it may sound, our very successes have contributed to loss of prestige, for the layman often cannot understand why we cannot always get results, and too often he is unwilling to pay the increased cost of improved service.

Meanwhile, if general practitioners everywhere are speaking the truth, affairs with them are going from bad to worse. We are told that there is no longer any inducement to enter general practice, certainly in the country and smaller towns. They claim they are no longer able to command the wages of the skilled laborer working union hours. They have not savings to carry proper insurance, to educate their children, to travel in the pursuit of knowledge or recreation. Their services are belittled by comparison with that of the more distant consultant. State and national boards of health, created to prevent disease and epidemics, now actually take over the practice of medicine, and make inroads upon their practice. Witness, they tell you, the chest clinics, those treating intestinal parasites, tonsils, orthopedics, and so on. For these reasons, and others, the younger doctors are staying in, or going to, cities. The country doctors are dying out, wearing out; and the genus is well-nigh extinct.

The doctor feels he has a grievance both against his clientele, the specialist and the pseudo-specialist. The layman complains of the doctor whose opinion and judgment he no longer trusts, and of the specialist who he believes imposes upon him and takes advantage of his need and distress.

Just here let me pause one moment to record this tribute to the family doctor: It is my candid belief that unwittingly the public is about to lose its best, its most sincere, its most unselfish and self-sacrificing friend in the whole professional world, when or if it allows the family doctor to go out of existence.

This is the problem we, as doctors, must set ourselves to solve. Admitting the unrest and dissatisfaction in and with the medical profession, what can we do about it? There can be no single remedy applicable to the situation. I have grave doubts whether it will be possible to find any combination of remedies which will be immediately applicable. We can, however, seek to discover causes of the unrest. Let us, then, examine ourselves, not forgetting that these conditions are in the main but a part of what is going on in the world at large.

Doctors begin to get out of touch with the mass of those who will need them from the day they enter the medical schools. Our schools are no longer graduating doctors of medicine in the old sense of the term. They are training and releasing numbers of young men who regard themselves above general practice, already specialists with all the fancied dignity and prestige the term implies. Our modern process of selecting prospective medical students lays proper stress upon the academic and scientific pre-medical instruction, but entirely too little upon the moral and ethical qualifications for the practice of what should be the most humane of arts. Accredited medical schools have reached the point of saturation. To increase the capacity will increase the present almost prohibitive cost about one thousand dollars per student per year. How can this highly expensive product adjust himself to a country practice!

In the old days when the family doctor was the keystone of the profession, the student read medicine in the doctor's office and accompanied him in his rounds of practice. He began his study on the patient; he finished it in the dissecting halls, the laboratories and the class-rooms of the schools. He was first of all a clinician. Nowadays, the student spends two years in the laboratories before he sees a patient. In his third year there is an abrupt transition from these materialistic

pursuits to the hospital wards with their human beings. By the time his interne year is ended, he is a scientific instrument of precision, may be, but mighty rarely a clinician.

Furthermore, two years must elapse before either the student or his teachers learn whether the prospective doctor is a misfit. This is in large measure responsible for the fact that, of physicians, three groups can be made. The upper level are leaders in research, thought and helpful activity. The middle level are strong, able, clear-minded men who follow the lead of the upper group. The lower stratum is one of the by-products of the present rule-of-thumb method of training students. They are the men unfitted in education, in spirit, in morale and in courage for the practice of medicine. Finding it impossible to carry on in ethical fashion, disappointed in the gratification of ambition or in the desire for money, they backslide into quackery, knavery, crime, suicide, drug addiction. (Manfred Call: *The Supervision of Pre-Medical Education*).

May it be permitted one to suggest that there is much in this system that needs the thought of our medical educators, and that perhaps sympathetic study might help in the major problem of securing efficient medical service to the mass of the people? Is it old fashioned to suggest that what we need is more doctors and fewer imperfectly trained specialists; that medical schools are supposed to graduate men prepared to serve the sick; that the spiritual and moral qualifications of fitness are at least as important for admission to the profession as the scientific; that the selected student should be led directly to the bedside, and throughout his medical school curriculum, the clinical study of the patient should be the center of his interest, the starting point of all of his laboratory and special studies?

The cost of the study of medicine should be reduced by curtailing the overhead expense through the consolidation of the smaller colleges, such as the two medical colleges of the State of Virginia. Then, I think we should subsidize a number of worthy students, probably through state aid. Perhaps this need be only a temporary expedient, but I believe the State of Virginia could well afford to contribute materially to educate students in medi-

cine, as it does now in the technical schools of the State—say ten or twenty young men yearly—on condition that the graduates bind themselves to practice medicine for a term of years within the rural districts of Virginia, or wherever they may be sent by proper authority.

In fact, I doubt whether any of us should graduate as Doctor of Medicine. I believe the public would be better protected, better served, and the profession elevated, if we were graduated as Bachelors of Medicine, and were unable to dub ourselves otherwise until we should have come up for our Doctor's examination, say, three to five years later. This examination might become the test of fitness for the chosen specialty, in which, if successful, he takes his Doctor's degree. Let family practice be first on the list of accredited specialties.

There will be a field to which such young practitioners can and will go. Qualified physicians will always be in demand because they meet an economic need. Not for an instant would I suggest nor countenance the suggestion that the student destined for country practice should be trained differently from his classmate being groomed for a city practice. The school that belittles the equipment necessary for country practice is grossly ignorant and not deserving of public support.

The conditions of country practice must be improved. The isolation of the man in country practice, his separation from his fellows, insidiously invites rust and decay. How shall we prevent this isolation, the marooning of the doctor in rural practice? So long as there is a demand for efficient medical service, there must be, perforce, a readjustment of working conditions to invite and to hold the services demanded.

In theory it is easy to find the answer. At once it occurs to us that it is only necessary for the doctor to keep himself in touch with progress through his reading, and through visits to the larger clinics, hospitals and medical centers of the country. But, in fact, as at present organized, or, rather, unorganized, this is nearly impossible for the profession of our smaller towns and country districts. To leave his practice is difficult. Frequently the doctor is the only one within reach of a wide stretch of country. Often he would feel

like a deserter did he quit his post even for a few days. Frequently he cannot afford it. The doctor knows that when he closes his office door, he has shut the door upon his already meager income. Again, it is poor fun and often a fruitless quest for a lone country fellow to go to some of our select centers in search of the crumb of knowledge that fails to fall from these rich tables.

But we must find some solution, however partial and open to objection it may be. And may I say, we must quickly find it before the public forces upon the medical profession of America some such system as Germany has, or the "panel system" of England. In my opinion, no such compulsion as these systems imply would be tolerated by free-born Americans. With all our souls, I believe the profession of America would resent any such dictation or limitation, even though in such a system we might find relief from the most urgent of our financial problems.

What, then, is the alternative? I believe the only alternative to state medicine is to bring post-graduate instruction and opportunity just next door to the doctor at his work. To be specific: I believe the remedy for the present conditions of country practice is, first, for the medical schools to exclude the ethically and morally unfit at their source; second, to encourage the profession of every community to develop, formally or informally, units, clinical groups if you please, which will serve the community on a co-operative, instead of a competitive and cut-throat basis. I am not now suggesting a group of specialists, but a group made up of general practitioners, probably entirely so; but to whatever extent its several members have fitness or liking for one department and another of general medicine, to cultivate it. The very confidence placed in him by his professional friends will most assure his deserving it. Of course, mutual trust and fidelity are basic in any such plan.

This group system adapted to the peculiar character of the doctors' work in rural communities will, in the course of a few years, make a welcome change in the conditions and nature of the service each individual doctor will render. Good fellowship, self-respect, public confidence, efficient work, all would be promoted.

It may be argued that this would but tend to increase of specialism now already overdone. Expert specialism is not overdone, and if such a division of labor results in the acquisition of an expertness that merges into special practice within the community, the community and the profession have registered a gain. If I were a patient in a town of eight doctors, I should be very glad to know there was one of the eight whom the others regarded as the man for my need.

But, by itself, such a system will not be complete nor render the full service demanded of the profession. However excellent such a group may be, there will be services it will not be equipped to render. Whether he practices as an individual or as a member of a group, the doctor will need the help of the hospital and hospital staff. This does not abridge the right of the general practitioner to hospital connections. In fact, I believe the doctor's hospital connection is the second factor in the remedy for his present situation. Every reputable physician should have not only the opportunity, but a hearty welcome, to the use of the public hospital in whatever sphere his capacity permits. He should be an extra-mural member of the hospital staff, not the hospital as at present so often operated and regarded. Unfortunately, many hospitals would have to be reorganized and some thrones overthrown. I do not want to give the impression that I have a quarrel with hospital staffs and specialists. I have no such feeling. Real specialism is the outstanding development of medicine of the last generation or two. We could no more do without it than we could revert in comfort to living conditions of Colonial days. So long as there must be specialism, grouping of specialists is the clientele's guarantee against most of the dangers and evils of specialism itself. But in all candor, we must admit that these specialists have often brought the hospital into disrepute. They have aroused the jealousy of the general practitioner, and the suspicion of the public. They endanger bringing down the whole structure on our heads through exorbitant charges for services, through casting reflections upon the ability and capacity of practicing physicians, by ignoring the primal claims of the family doc-

tor, and like practices in this struggle for self and selfish ambition.

The regeneration of the hospital and its personnel means that, first, last and all the time, it is to be conducted in the interest of the sick public. Only incidentally thereto should it operate for the personal reward in fame or money of its staff. Let it be recognized that hospital positions are the soft places of practice, arrived at, it may be true, by hard work and some sort of ability, but where the work and the service itself should substitute to some extent for financial remuneration.

I believe such a hospital spirit is just around the corner. This is the hospital to which I would attach the doctor in whatever way it can serve him. So far as it is practicable, every qualified physician within reach of the hospital should, through his recognized membership upon its staff, make use of its facilities, and especially of its staff conferences, for that friction of contact which sharpens mental processes; for the acquisition of knowledge that he can carry with him to the bedside; for maintenance of self-respect which increase of knowledge and skill inevitably bring—a self-respect which will command respect in others, and hold a clientele through merit alone.

In return, the physician will bring with him into the hospital an atmosphere of democracy now often missed. Furthermore, he will make acute a need now already sensed. That need is provision for the man who needs the hospital worst and is largely shut off from it: the man that only the family doctor reaches in some obscure place where the specialist of today rarely goes. The honest doctor having determined the honest need, the hospital should find a way to admit, regardless of creed or condition. Once admitted, he should be accorded all the attention and skill the need demands.

I submit that such a plan has in it elements for bridging the gulf that now separates the hospital man, the practitioner and the public each from the other.

Instantly objections appear to your minds. The well-to-do patient must not be saddled with the cost of the less fortunate. Again, such a scheme seriously risks paternalism on the one hand, pauperism on the other. Per-

sonally, I am opposed to giving any one but the most destitute absolutely free service. Such service is rarely appreciated, and its practice fosters pauperism. I would fix impartially the applicant's ability to pay, whether that be ten cents or ten dollars a day, up to the cost to the hospital of the services rendered. Then require the payment of that assessment.

Of course, there may be a deficit from operation, more apparent than real in my belief. If there be a deficit, it must be met by ample endowment or be underwritten by some unit of the body-social or politic. Large endowments cannot be general in the South today. The State as a whole, the County or some group of counties are units that suggest themselves as the only alternatives. If the State agrees to subsidize the care of the insane, of the epileptic, of the tuberculous, of the crippled, and of the general sick in teaching hospitals, it does not seem radical to propose like state-aid for several hospitals distributed throughout the State. In this event, of course, the books of the hospital would be open to inspection by proper authority. Indeed, I am ready to admit that the earnings of the staff are a legitimate matter for the information of any donor, public or private, to hospital expense or endowment.

Such hospitals would serve as post-graduate centers of instruction, would entice young men back to rural communities, and would provide adequate care for the sick of rural communities.

This is not state medicine. Let the private hospital alone; let the physician alone; let the individual be entirely free to select his own physician, his consultant, his hospital. But make it possible to every person to get efficient medical service, and every doctor who deserves it opportunity to keep himself efficient.

Now, as we come to an end, are these the visions of a dreamer? Possibly so. Yet our grandfathers would have been called visionary had they pictured the status of medicine of today. And, after all, the doctor, the reason of his existence, the ground of his prosperity, are controlled by principles that regulate all human endeavor and success. Certain fundamental laws have always been in operation in society as in nature. One was the old

law of the survival of the fittest. Today there is something moving in the world evolving a principle that is constantly challenging this law of the jungle. This principle promises to become a law too, which will exempt none who truly succeed. It has been called, therefore, "the inescapable law of service." And yet this is not a new idea. For nineteen hundred years, we have been told: *It is more blessed to give than to receive!*

HISTORY AND SYMPTOMS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

By DAVID R. LYMAN, M. D., Wallingford, Conn.

The physician who takes the most pains with his histories will always have the smallest percentage of failures in his diagnoses. With the rapid development of the X-ray and of the clinical laboratory with the constant new "tests" it is giving us, we are somewhat prone to forsake the guidance of our natural five senses and to trust entirely to these aids of modern science. It is a tendency to be deplored, for with no lack of due appreciation of the great advantages of these newer diagnostic aids, one can but regret to see them substituted for instead of *added to* the highly trained senses of sight, smell, taste, touch and hearing that characterized the leaders of our profession in other days. The keen diagnostician of those times would have gladly welcomed the aid of the laboratory with its cultures for his doubtful throat cases, and yet, had we not in turn something well worth while to learn from the doctors who could diagnose diphtheria as soon as they sniffed the atmosphere of a sick room?

The diagnosis of pulmonary tuberculosis often affords an excellent illustration of the unfortunate tendency to rely entirely upon the new procedures. Is there a question of tuberculosis? Then, have an X-ray at once! To be sure, sputum examinations can be had free of charge at any public laboratory, but that is apparently out of date. How many cases we now see who have been diagnosed by X-ray, where a careful history, with due consideration of the previous record and the present signs and symptoms, would have led to a correct diagnosis with considerable sav-

*Read before the New York State Medical Society, May 14, 1925.

ing in expense to the patient and with marked increase in prestige to the physician!

We all readily acknowledge the value of the history as an aid to diagnosis, but when one notes the superficial manner in which most histories of our tuberculosis cases are recorded, one is led to wonder whether this has not indeed become a lost art? This laxity is to my mind one of the chief reasons why the general practitioner has to call on the specialist so often for aid in his diagnoses. The diagnosis of tuberculosis is not, or should not be, the task of a specialist.

In the majority of cases it could and should be made by the general practitioner with the data gathered from a careful study of the history, symptoms and physical signs and before the disease has advanced beyond its earlier stages.

As regards the value of history and symptoms in the diagnosis of pulmonary tuberculosis, my personal feeling is that, if forced to discard all but one of the four main diagnostic methods—history, physical examination, X-ray and laboratory tests, I would discard the three last and take my chances on the history. Not only will it give me as high a percentage of accuracy as any of the others, but it alone can give the background of the patient's past with that knowledge of his industrial, social and mental status which one must have in order to advise him intelligently.

Before taking up the important points to be brought out in the history of a suspected case of tuberculosis, let me first emphasize the statement that, for your present information and for future reference, it is necessary to record in detail all the important factors. When I look up a history and find "previous history negative" or "cough +," I know that record was made on one of my lazy days, for it tells me almost nothing. I have no idea how deeply the previous history was inquired into, and surely the fact that the patient had a cough is of but little moment unless I know its type, duration, time of day when worst, whether dry or productive and what was its apparent point of origin. So, if I seem to you to be unduly verbose in regard to details it is because I regard them as most important.

What, then, are the principal points to be brought out in a case of suspected tuberculosis?

First, is the family history—the most misleading of all records. Unless we are sure the patient is well acquainted with the history of the family, at least so far as covers the close associations of his childhood, a negative family history means little. In fact, even though he be well acquainted with this history, tuberculosis has been covered up under so many alibis and aliases that a negative answer to the question "has any of your family back to and including your grandparents had tuberculosis?" means but little to me. Nobody ever had tuberculosis a generation ago who could find some other name that seemed to fit their symptoms; chronic cough, bronchitis, asthma and catarrh being the diagnoses most often called upon to help. The family history is most incomplete unless special inquiry is made as to these. I also inquire as to any history of hemorrhage, remembering one case whose family history (so his mother assured me) was free of tuberculosis for generations. When I asked if any of them ever had a hemorrhage she replied, "Yes, I did when John was a baby, but the doctors said it came from my stomach!" It later developed she also had a cough which, having been the familiar companion of a lifetime, she had overlooked, and subsequent examination showed numerous tubercle bacilli in her expectoration.

Next comes the history of previous illness—most important not only to indicate but also to *exclude* tuberculosis.

Of especial interest to us are previous attacks of pneumonia, pleurisy and influenza, and whether or not the patient has been especially subject to "colds." Remember in regard to "colds" that the average patient will class them all together. Only by further questioning can you determine whether they were merely coryzas and unimportant, or chest colds which cleared very slowly and whose frequent presence recorded in the history may add considerably to your understanding of the case. So, with influenza or "grippe." Were the symptoms those of grippe? Did the patient recover promptly or not? How frequent were the attacks? Only last week I listened to a history of "grippe every winter for the last thirty years" and was quite prepared to find an old chronic tuberculosis scattered through one entire side, but never

diagnosed as such. It is very important to make note of any recent attacks of acute respiratory affections, for the post-influenzal symptoms and physical signs can simulate pulmonary tuberculosis so closely that only time and study can give the correct answer. One must be cautious as to making a positive diagnosis during the period of convalescence from such acute infections, and especially when the physical signs are in the bases, though the presence of a basal lesion is by no means proof that the trouble is not tuberculosis.

In institutional work it is also necessary for us to go carefully into the business and social history. To you in general practice, these details are often already well known. Where this is not the case, let me urge that you acquaint yourselves with them as thoroughly as possible, for here you will often find the real cause for your patient progressing so slowly, as well as the means to best guard against break-down after his initial recovery.

Now, as to the present illness. What do we need to know to guide us to a correct diagnosis?

FATIGUE

First, the patient's general health is to be considered. Is he as well as usual? If not, how long since he has been? Has he been "going on his nerve," so to speak, and gradually running down for some time? That is the way the malaise of tuberculosis usually presents. If tired, then, when does he note it most? Perhaps the most constant significant symptom is a fatigue that is noticed in the morning, after what would ordinarily have proven a refreshing night's rest. It is much more significant than fatigue at the end of the day's work. With such a history, one must search for other causes of morning fatigue; — late hours, dissipation, mental strain due to family troubles or finances and causing troubled sleep must all be asked about and given due weight. These excluded, however, the persistence of a marked tired feeling on first awakening is to my mind the most constant of all suggestive symptoms of tuberculosis.

COUGH

This is perhaps the most varying of all symptoms in its presence or absence, its type and its persistence, and it often requires a

good deal of questioning to get a proper idea as to these. The little dry "hack," especially in the early morning, has, you will often find, never registered itself in the patient's mind as a real cough and will only be admitted to exist when asked about specifically. The presence of a severe cough following on an acute cold does not carry near as much weight in suspicion of underlying lung trouble as does the story of just a slight persistent cough in the absence of such a history. You will find many patients, however, who classify all coughs as "colds," whether accompanied by any symptoms of recent infection or not, and it is only through careful questioning that you can distinguish between them.

Then, too, the origin of a cough will give you valuable clues. Asked where the tickle is that starts the cough, most patients reply "in my throat." Asked to put their finger over the spot, they touch either over the base of the tongue, the larynx or the supra-sternal notch. The two former locations are almost presumptive evidence of pharyngeal or laryngeal irritation. The supra-sternal notch, on the contrary, while included by the patient in the general anatomy of his throat, is the most common seat of the sensation which excites the cough in chronic lung diseases. Irritation located back of the sternum is usually indicative of a bronchitis.

One of the common errors in diagnosis is found in the patients treated for stomach trouble instead of tuberculosis, because their chief complaint is that of vomiting immediately after meals. If we take the trouble to make our own diagnosis instead of accepting that of the patient, a careful questioning usually shows in these that there is no true nausea present, but a gag-reflex from a cough excited by the swallowing of warm food, and that the chest is the seat of the trouble and not as the patient thinks, the abdomen.

EXPECTORATION

History of this symptom is of most importance when it inspires the physician to have the sputum carefully examined, not once but many times, bearing in mind that while the typical sputum of tuberculosis is thick purulent or muco-purulent, yet bacilli may sometimes be found in specimens that appear to be little more than saliva. We must also remember that while one positive sputum is

enough to establish the presence of tuberculosis, no number of negative results can justify its exclusion in the face of clinical evidence to the contrary.

FEVER AND PULSE

The general practitioner fails more in his recording of these symptoms than in any other. Nine times out of ten, patients referred to the specialist have only had these observed when at the doctor's office, and that during morning office hours, whereas the most important readings are in the afternoon or evening. In all cases where you are suspicious of tuberculosis, have your patient get a thermometer, show him how to read it, and then have him bring you a *written* record taken every four hours for several days, with record of the pulse at the same time. Most patients can find means of doing this, and, once you explain to them the importance of your knowing how these records vary at different times of day, will not think you a nuisance, but rather will appreciate the care you are taking with them. Be sure not to omit the evening temperature. We see many cases where a normal afternoon temperature has led the physician astray and lost the patient his chance for early diagnosis. In taking such records, also bear in mind that, no matter what is printed on the thermometer, it takes a full five minutes to get an accurate mouth reading, and that where patients have been talking in the open, especially in cold weather, it takes nearly half an hour indoors for the mouth to again register the correct temperature. This is the reason so many patients gleefully report that their temperature comes down after exercise! Remember also that ingestion of food, warm drinks, mental excitement and smoking may cause temporary slight elevations of both temperature and pulse and that both of these are common in women at the menstrual period. With such causes ruled out, a record that shows a persistent daily range of temperature from normal or sub-normal in the morning to 99° and 99.5° later in the day, with a pulse range ten beats or more above the normal, should be regarded as possible indication of tuberculosis, and set you to work to prove the contrary if possible.

WEIGHT

The steady loss of weight, with no marked

change in the patient's life to account for it, is perhaps one of the best recognized warnings of the possible existence of tuberculosis.

SWEATS

Few symptoms are more carelessly recorded than night sweats. In most early cases where the patient complains of these, a close questioning will reveal that this symptom which has caused such alarm is only what might be expected when patients, fearful of colds and draughts, have closed the windows and piled on the bed clothes. True night-sweats are most significant once you have by careful questioning excluded those of artificial origin.

HEMORRHAGE

This is one symptom which in itself can be sufficient to justify a diagnosis of pulmonary tuberculosis, but the history of the hemorrhage, as to type, amount and manner of appearance must first be well established. Barring certain heart lesions, lung abscess, bronchiectasis and other causes, all of which can be readily excluded, the appearance of pure red blood, even in small amounts, when definitely raised from below the base of the tongue is sufficient to establish a tentative diagnosis, and, if the bleeding be at all free, to justify a positive diagnosis even in the face of negative physical signs and X-ray. Nothing is more often misleading, however, than the patient's first statement as to hemorrhage, and it requires careful questioning to determine if the blood was clear or simply streaked in the mucus of a hard cold, whether it was dark or light, and whether raised with a cough or merely "hawked" from the back of the throat. I recall one case sent me with positive diagnosis based on a history of hemorrhage, where I could find nothing wrong, when the patient suddenly snuffed violently, hawked from the back of his throat, spat out some streaked mucus and with cold sweat starting on his forehead, said "Good Lord, another hemorrhage!" Examination of the posterior nares revealed its origin, and the patient went away rejoicing, but I don't think he went back to his former physician! As a general rule, blood streaked sputum repeatedly raised from below the mouth cavity in the absence of acute respiratory affections is most suggestive of tuberculosis, and free hemorrhage so raised is, in the absence of the

other causes above mentioned, sufficient in itself to justify a diagnosis.

PLEURISY

Dry pleurisy, recurring in the absence of acute respiratory infections, should be given great weight. A single such attack should lead to a most careful study of the case and, even when other signs are absent, indicate at least a warning to the patient as to possibility of underlying trouble, with caution as to mode of living. Pleurisy is not a disease. It is a symptom of some underlying inflammatory condition in the lung. In the absence of acute disorders, these recurring attacks are usually due to tuberculosis. Here, again, one cannot rely upon the patient's diagnosis, but must inquire into the details of the pain and other symptoms and satisfy himself that the attacks were true pleurisy.

PLEURISY WITH EFFUSION

When the fluid is clear and sterile, it practically always indicates tuberculosis and, like free hemorrhage, is in itself enough to justify a positive diagnosis. The absence of tubercle bacilli in the fluid is of no significance, for experiments at the Saranac Laboratory have shown that in the effusions produced experimentally in animals, the bacilli cannot be recovered from the fluid after the first day or two.

ISCHIO-RECTAL ABSCESS

In all doubtful cases we should always ask if there has been any history of ischio-rectal abscess. A large proportion of these are of tuberculous origin, and in cases where other signs and symptoms are strongly suggestive of tuberculosis its presence in the previous history is sufficient to confirm the diagnosis.

To sum up, I would say that, aside from free hemorrhage and pleurisy with effusion, the symptoms are rarely sufficient in themselves for positive diagnosis, but that a carefully taken history will give indication of the need of close study in time to secure a diagnosis in the early curable stage of the disease. Further than this, with a history giving a suggestive grouping of typical symptoms, especially morning fatigue, constant elevation of pulse, slight daily rise of temperature, persistent hacking cough and increasing malaise, a tentative diagnosis of tuberculosis, with the institution of proper treatment until its pres-

ence can be finally proven or disproven, will safeguard both the welfare of the patient and the reputation of his physician, and this diagnosis could and would be made by the family physician in the majority of cases if he would make use of the careful study of the history and symptoms in connection with the physical signs.

It may seem that the detail which I have indicated is more suitable for the leisurely records of an institution than for those of a busy practitioner. Such is most emphatically not the case. A brief line of questioning is sufficient to determine the presence or absence of these cardinal symptoms, but when you find any of them present, only such detail inquiry as I have indicated will enable you to give them their true value; and their value for future reference will depend in turn upon the detail with which you record them.

APPENDICITIS IN CHILDREN.*

By CHARLES S. WHITE, M. D., Washington, D. C.

It requires more than passing temerity to present to this Society a paper dealing with appendicitis, a subject well-nigh exhausted, but I wish to stress the point that *appendicitis in children presents* problems of its own that tax our very best judgment and skill. Its higher mortality, compared with the same disease in the adult, demands some attention. To save more lives, the co-operation of the family physician (if such a personality still exists), the pediatrician, the surgeon, and other specialists, is necessary, and for that reason I will submit some facts and opinions, chiefly from a surgical point of view, for your consideration.

It is not possible to get accurate data on the death rate of acute appendicitis in adults or children, as no true demarcation exists between acute, subacute, and chronic appendicitis, as far as most hospital records are concerned. We all know of cases of so-called acute appendicitis which are hurried to the hospital for operation, only to find upon exploration that the appendix is playing rather a minor role, yet the case goes down in the record as acute appendicitis, and such records are, necessarily, untrustworthy for purposes of comparison. I reviewed the records of two city hospitals for the past two years, noting

*Read before the Medical Society of the District of Columbia, May 20, 1925.

only the drainage cases of appendicitis. In one, the mortality was 14 per cent; in the other, less than 5 per cent. This seems rather remarkable when further investigation shows that the same surgeons operate frequently in both hospitals.

The mortality rate in the Children's Hospital, this city, for the past five years, up to January 1, 1925, was 12 per cent.

The mortality in children under two years of age is 50 per cent. Helmholtz, of the Mayo Clinic, in 1924, reports fifteen cases under five years of age with a mortality of 47 per cent, and fifty cases between six and fourteen years with a mortality of 5.5 per cent. (Of these, six cases were carried to the interval operation). The mortality for the entire series was 14.5 per cent.

There seem to have been only a few authors who have stressed the difference between the disease in the adult and in the child. Finney was one of the first to do so, and I am sure the subject will bear repeating many times. So much depends upon the early recognition of the disease that it may be truthfully said that the fate of the patient is in the hands of the physician who treats him in the first forty-eight hours.

While appendicitis is essentially a surgical disease, particularly in children, the general practitioner is the first to see the patient, and it is upon his advice that the surgeon is consulted. Let me state at this time that there are two outstanding features in appendicitis in children that do not belong to the symptomatology of the adult, namely: The apparent insidious onset, and the violent or fulminant character. Add to this, poor diagnosis, purgation, and procrastination, and the high mortality is explained.

It is stated by Howard Kelly that the appendix in the child is relatively longer than that of the adult, but the submucous layer is relatively thinner. In his opinion, that variation accounts for the angulation and kinking as well as the early rupture from pressure within. In my own experience, the appendix is found in the pelvis very frequently. Its deep situation often removes it from the region of the parietal peritoneum and the tenderness and rigidity so common and striking in the disease is often absent or modified.

Undoubtedly mistakes are made in the

operating room. Operations are prolonged in search of an appendix which should not be disturbed, and drainage is unwisely used, and poor choice of anesthesia is made, but these constitute a relatively small proportion of the causes of death. The cases of ruptured appendix, general peritonitis, extension of the infection to other organs and the blood stream, account for the largest number of fatalities.

The previous history of the child furnishes very little constructive information. Exposure to contagious diseases may suggest the examination of the patient for the early signs of such diseases. Many of the infectious diseases of childhood are ushered in with fever and abdominal pain, and appendicitis following influenza is not uncommon.

The most important single symptom of appendicitis is local tenderness in the right lower quadrant. It requires much patience and tact to elicit this symptom in a child, and we would do well to profit by the method of the pediatrician who uses numerous ways and devices to distract the patient's attention to get his confidence.

The absence of tenderness in the classical area does not exclude appendicitis, as an inflamed appendix in the pelvis does not give the peritoneal irritation represented by rigidity. The tenseness of the abdominal muscles is so common in illnesses of childhood that very little dependence is placed upon it, although in appendicitis it is usually localized early in the disease. After general peritonitis is present, tenderness and rigidity may be entirely absent. A mass found in the region of McBurney's point is almost positive evidence of appendicitis.

Pain is usually sudden in the onset, then subsides, and recurs. It varies greatly, depending upon the tension in the appendix, and is relieved by its rupture. When the appendix is in the pelvis, as it often is, the pain may be slight and then just above the pubes.

A rectal examination to determine tenderness is of much value and should be a part of the routine examination. In infants under two years of age it is usually unsatisfactory.

Vomiting is present in 70 per cent of the cases and is not characteristic, except it is never fecal. Vomiting in digestive disorders is not persistent as in appendicitis.

Constipation is not a prominent symptom. Diarrhea may precede or usher in an attack. Distention of the abdomen is seen late in the disease and is significant of extension of the inflammation beyond the appendix. Painful urination is of such frequency that it demands attention. It is usually ascribed to pyelitis or cystitis, but in the absence of pus in the urine, we should entertain a diagnosis of appendicitis, with the appendix in contact with the urinary bladder.

The temperature may oscillate between 98.4° and 103°, especially in the early stages. Morning temperature is usually normal or even sub-normal and the temperature curve is of little value unless recorded at four hour intervals. The leukocyte count and particularly the differential count is very important. The count on the first day of the disease is between 10,000 and 20,000 and as the disease progresses may increase very materially—or even drop to 7,000 or 8,000. The low count, without a corresponding amelioration of the symptoms, is a bad omen. Regardless of the count, a high percentage of polymorphonuclear cells, without an increase in the eosinophiles, should be given considerable weight in arriving at a diagnosis.

With a group of symptoms fairly constant, both in order of their appearance and their intensity, it would seem that the diagnosis should be made early and easily, but this is not true and the problem in appendicitis in children is the problem of diagnosis. In the adult, pain in the abdomen generally suggests appendicitis, while in the child, pain in the abdomen suggests something else than appendicitis, and is summarily dealt with by subjecting the gastro-intestinal tract to the drastic punishment of purgation.

The onset of some of the infectious diseases may bear a general resemblance to appendicitis, and a few cases of measles, in the early stages, have been operated upon because of the similarity of the two diseases at this period. Examination of the mucous membrane, blood counts, careful physical examination, and history of exposure to infectious diseases usually settle the question.

Three diseases offer the greatest difficulty: intussusception, pyelitis, and pneumonia. Intussusception occurs in children usually less than two years of age, the onset is much more

acute than appendicitis, the stools are bloody or blood stained with mucus, and a tumor can be palpated in the abdomen or in the rectum. An anesthetic may be necessary to relax the patient sufficiently to make a satisfactory examination, and with the present method of administration of gas anesthetics, no one should hesitate to employ this method. Both appendicitis and intussusception are surgical diseases and an error in diagnosis fortunately does not add to the risk.

Pyelitis and appendicitis have many symptoms in common, and the differential diagnosis is easier on paper than at the bedside. I refer, of course, to pyelitis of the right side, which, by the way, is much more common than the left. Pyelitis is common in childhood, especially in the female, and is attended with abdominal pain, fever, vomiting, rigidity, and leukocytosis. The temperature is usually higher than in appendicitis and has wider excursions. The tenderness in the abdomen is more diffuse, sometimes posterior, and a mass is never present in the lower right quadrant. The pain is referred to the back as well as to the abdomen. Pus cells in large numbers are found in the urine; but repeated examinations are necessary to find them at times, though, once found, are distinctive of the disease. The pus may be dammed in the pelvis of the kidney and under pressure is suddenly released so that pus cells appear in the urine in so-called "showers," with normal urine between the showers. The child never seems so ill in pyelitis as in appendicitis; he may have a temperature of 104 and yet be interested in toys and games. A child ill two or three days of appendicitis, with a high temperature, looks very ill and is just about twice as ill as he looks.

Dr. F. D. Adams read a noteworthy paper before this Society about two years ago on the *differential diagnosis* between lobar pneumonia and appendicitis in children, based on a large number of cases admitted to the Boston City Hospital. An index of the prevailing error in diagnosis is found in his statement that of 145 cases of lobar pneumonia admitted to the hospital, twenty-five, or 17 per cent, were diagnosed as acute appendicitis. It is a much more common error to call pneumonia appendicitis than to call appendicitis pneumonia. Adams set forth in his paper these essential points in the differential diagnosis:

	PNEUMONIA	APPENDICITIS
<i>History:</i>	Often preceded by a cough or cold or chest pain.	Usually has no antecedent history with the possible exception of grippe and eating indigestible foods.
<i>Abdominal Pain:</i>	Is severe, constant and general.	Is paroxysmal and less intense.
<i>Vomiting:</i>	Occurs in small per cent of these cases (about 15%).	Occurs in a large per cent of cases (70%).
<i>Diarrhea:</i>	Common in pneumonia.	Uncommon in appendicitis.
<i>Respiratory Symptoms:</i>	Suggestive or evident, showing slight dullness, distant tubular breathing.	Both absent in appendicitis.
<i>Abdominal Tenderness:</i>	Superficial, severe, higher in the abdomen, and not increased by deep pressure.	Tenderness is variable, becomes circumscribed and is aggravated by deep pressure.
<i>Rectal Examination:</i>	Negative.	Exhibits tenderness or a mass on right side.
<i>Leukocyte Count:</i>	20,000 or more.	Generally below 20,000.
<i>Temperature:</i>	Likely to be above 103.	Likely to be below 103.
<i>Röntgen Examination of the Chest:</i>	Positive (with very few exceptions).	Negative.

It will be self-evident, from the differentiation just stated, that a complete examination is necessary for diagnosis. The physician or surgeon who confines his examination to poking a finger into the abdominal wall in the vicinity of McBurney's point is destined to receive a lesson in humility.

The acute abdominal conditions in children are more often appendicitis than any other disease and should be thought of first when such a case is seen. In the adult, abdominal pain always suggests appendicitis. In the child, it is about the last thing we think of. It cannot be ruled out without a careful physical examination, and, at times, many laboratory examinations as well.

The treatment of the disease may be divided in two parts:

First: The preliminary, or up to the time the diagnosis is made.

Second: After the diagnosis is made.

In the early stage of the disease very little medication is necessary, a much restricted diet, or water alone, and an enema covers most of the treatment. In no stage of the disease is a purgative indicated. No drug has been responsible for as many deaths as the administration of purgatives. This is a matter of common knowledge among physicians and should be made known to the laity. While we, as physicians, discuss appendicitis and condemn purgatives, it is a matter of record that a large percentage of cases of acute appendicitis receive purgatives at the direction of the physician. A dose of oil or broken doses of calomel

to clean out the intestinal tract is the explanation,—to rupture the appendix would be nearer the truth.

Merely because the child is ill does not justify the thoughtless, indiscriminate and fatal administration of a purgative. Just as soon as the diagnosis of appendicitis is made, the case is a surgical one. When to operate is a question not entirely settled. Dr. Oschner has laid down principles of treatment which call for delay, starvation, and sedatives, more applicable to the adult than to the child. It may be presumptuous on my part to take exception to the opinion of such an eminent teacher and surgeon, but my personal experience tells me that more children die of delay than from an early operation. It is conceded that postponing an operation a few hours may be desirable, when, for instance, the patient is exhausted from a long journey to reach the hospital.

In those cases seen late, with abscess formation, it is sometimes better to wait a few days, until the walling-in process is well established. But, taken as a class, the earlier the patient is operated upon, the better the chances are for recovery. We are dealing, in these little patients, with a condition, which, once established, is rapid, fulminant in type, and the tendency to subside or to become isolated by peritoneal adhesions is not seen as often as in the older patient.

I will not detail the technique of the operation. It would be well to point out, however, that an extended search for an appendix

buried in the wall of an abscess is attended with much danger of disseminating the infection. It is far better to leave the appendix and drain, and at a later date remove the organ, than to traumatize and infect the peritoneum by efforts to remove the offender.

The current opinion is that drainage is too frequently and often improperly used—that previously we have placed too much dependence upon drainage and not enough upon the peritoneum. Only time, with its ripe experience, will settle the question if it can be settled at all.

Summarizing, I would say that *appendicitis in children* has a beginning not unlike many other diseases, and is not recognized in the very early stages, but the disease has a rapid and severe course. The diagnosis, at times, is difficult, but with care is possible before the disease is well advanced. Purgatives have no place in the treatment of acute appendicitis; and the earlier the operation, the better the prognosis.

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THE CLINICAL SIGNIFICANCE OF HEMORRHAGE FROM THE RECTUM.*

By W. L. POWELL, M. D., Roanoke, Va.

In cases presenting hemorrhage from the rectum as a symptom, it is of prime importance to determine as accurately as possible the source from which the blood comes, and the causes.

The color of the blood, whether bright red or dark and tarry in appearance, and whether it is thoroughly mixed with fecal material or deposited on the outer surface, will give us our first clue as to whether the source of the blood is from the upper or lower digestive tract.

In this paper, we wish to consider more particularly those hemorrhages that have their origin in the colon and rectum, although we think it well to review briefly the conditions in the upper intestinal tract which may cause this symptom. In a paper on this subject by Dr. J. M. T. Finney in *Surgery, Gynecology and Obstetrics*, April, 1912, thirty-two conditions are cited that may cause blood in the stools. Some cases in which the only conditions that could be found to account for the blood were appendicitis, gall-stones and pan-

creatitis; other causes were trauma, either external or internal, mechanical obstruction, such as strangulated hernia, intussusception, volvulus, or adhesions. Inflammatory causes are ulcers due to pyogenic bacteria, typhoid, tuberculosis, syphilis or chemical poisoning. New growths or blood dyscrasia may also cause this symptom. In all the above conditions, the blood is usually dark in color or intimately mixed with fecal material.

The conditions in the pelvic colon, rectum and anal canal, with which we are especially concerned, which cause hemorrhage and in which the blood is bright in color, and in most instances deposited on the surface of the feces are:

1. Cancer of the Rectum. Hershmann states that 50 per cent of all cancers occur in the gastro-intestinal tract, and of these 16 per cent are primarily in the sigmoid or rectum. The most frequent site is at the recto-sigmoid junction, and in the early stages this condition presents few symptoms other than bleeding with stools. As primary cancer in this location metastasizes comparatively slowly, you may have considerable involvement without accompanying cachexia and loss of weight. If found early, the chances of operative removal are very good. Age does not seem to bear as definite a relationship in the development of cancer of the rectum as in other organs. It has been known to occur in those of fifteen years of age, and I have recently seen one case at the age of twenty-three.

2. Ulcer of the rectum may be tubercular, syphilitic, traumatic, amoebic or simply an extension downward of an ulcerated colitis of unknown origin. These ulcers produce frequent and bloody stools mixed with mucus, occasionally bleeding with no fecal material.

In proctological examinations one should search carefully between the valves of Houston; ulcers in this location are frequently overlooked.

3. Stricture of the rectum has been regarded for years as due to syphilis, yet recent investigations have shown that not more than 50 per cent show a positive Wassermann. The most frequent site is from one to two inches within the rectum. As they become smaller in caliber, constipation becomes more marked, straining at stool is constantly necessary to produce a passage, and this frequently results in blood-

*Read before the Southwestern Virginia Medical Society, at Mountain Lake, Va., August 27-28, 1925.

streaked feces. There is often a dilatation of the bowel above the stricture and a congested condition of the mucous membrane below.

4. Polypi. The frequency with which these occur in the rectum seems to be recognized only by those especially interested in this line of work. They are often present in children, producing very few symptoms, but occasionally are a cause of hemorrhage, frequently becoming caught within the sphincter and producing pain, straining and bleeding.

Varicosities of the mucous membrane above the hemorrhoidal area are occasionally present, and straining at stool frequently produces blood-streaked feces from this source.

5. Trauma may, of course, be the cause of hemorrhage in this as in any other location. I have recently had the opportunity of seeing an unusual incidence of this in Dr. Stone's Clinic at Hopkins: The patient was brought to the hospital in an unconscious condition, presumably from alcoholism, and incidentally having taken tincture of iodine. Among other symptoms was bleeding from the rectum. The first examination at the clinic showed the presence of hemorrhoids. The routine proctoscopic examination could not be completed, as the rectum was obstructed by feces. At a later examination, it was found that there was a deep laceration on the under surface of the lowest Houston valve from which blood was still oozing. His hemorrhoids were in no way responsible for his hemorrhage. The manner in which this injury occurred is undetermined.

6. Fissure. If a patient complains of severe pain during and following bowel movement, with the feces streaked with blood, it will be found that ulcer or fissure of the anal canal is responsible in a large majority of cases. There is no other condition in this region that produces as much suffering.

7. Fistula in ano is occasionally responsible for rectal hemorrhage.

8. Hemorrhoids. As we all know, this condition is responsible for a large percentage of bleeding from the rectum, but we must avoid considering that practically all cases are due to this condition.

This brief review of the numerous causes of rectal hemorrhages is a plea for an examination of patients consulting you, suffering from this symptom. We should not, as is frequently done, take it for granted that he is suffering

from "piles" and dismiss him with ointment or suppository, but make a careful examination to determine the real cause. Many cases of carcinoma have been allowed to go from the curable to the incurable stage for the lack of a proper examination. Many cases of fissure have been allowed to go the rounds, and finally fall into the hands of some quack who will make the diagnosis and relieve the patient. The fact that the majority of general practitioners consider diseases of the rectum as of minor importance or beneath their notice is responsible for this field being so fertile for the development of quacks and patent medicines.

INTRAVENOUS MERCUROCHROME 220: CASE REPORTS

By WILBUR M. BOWMAN, M. D., Petersburg, Va.

It is not the purpose of this article to include the literature on intravenous mercurochrome; the writer merely wishes to present a report on the cases personally treated as there may be some points of interest to those engaged in this phase of work. It is true that the number of cases contained herein are few but to the writer a sufficient number of interesting facts have been brought out to justify publication at this time.

The cases that have been the subject of the intravenous treatment may be enumerated as follows:

- (1) Mycotic Endocarditis.
- (2) Chronic Polyarthritides — Hypertrophic (2 cases).
- (3) Pyelitis.
- (4) Puerperal Septicemia.
- (5) Rheumatic Fever.

Case 1—A. S., a colored woman, single, age twenty-seven, was admitted to the Hospital October 19, 1924, with a diagnosis of septic endocarditis, pericarditis, and acute nephritis. For several weeks prior to admission she had two and three chills a day. The blood culture was negative. During a period of six days after admission there was a variation in temperature from $106\frac{3}{5}$ to 98 and a continuation of several chills daily. On the 25th, 30 c.c. of mercurochrome 1 per cent, was given intravenously which was soon followed by the usual reaction and an immediate change in the pulse and temperature. The variation in temperature from then on was from 100 to 102 but an

even more striking phenomena was the complete cessation of chills. The patient also appeared to be more comfortable. On the 28th, 35 c.c. of mercurochrome 1 per cent, was given and, though the same variation in temperature continued, it was more uniform. The next day the patient developed a stomatitis with marked pytalism. On November 2nd a severe pericarditis was noted and the patient was not entirely rational. On the following day relatives decided to take her home against the advice of the physician. It was learned that the patient died a week later.

Case 2-A—A case of chronic polyarthritis (Hyp. form) in a man fifty-nine years of age in which no foci of infection could be found responsible for the condition and in which all previous treatments had failed was given three intravenous doses of mercurochrome, 1 per cent, at two to three day intervals as follows:

First Administration, 25 c.c.

Second Administration, 27 c.c.

Third Administration, 32 c.c.

No reaction was noted from the first but following the second dose the temperature went from 98 to 101 and the leucocytes from 5,000 to 12,000. The patient was discharged from the Hospital unimproved.

B—Another case of chronic polyarthritis (Hyp. form) was that of a boy fifteen years of age weighing only thirty-five pounds. All previous treatments had failed and the patient never experienced an entire day of relief from his suffering. He was given repeated injections of mercurochrome but without any gross appreciable objective results. The patient would say, however, that after each reaction his joints felt better and he could sleep with comfort one or two nights following.

Case 3—Miss L. S., an elderly white woman, single, who complained of pain and tenderness in the right kidney region, accompanied by chills and fever, was taken sick three days prior to admission to Hospital. Her temperature continued to rise to 103 $\frac{4}{5}$ so she was admitted on October 30, 1924, with a diagnosis of pyelitis. The patient continued to have chills and a variation in temperature from 103 $\frac{4}{5}$ to 98 until November 15th, when she was given 23 c.c. mercurochrome, 1 per cent, intravenously with the usual reaction following and an immediate fall in temperature to 97 by the next morning at seven o'clock. The

patient began to feel better, the chills had stopped, and her temperature continued uniformly normal for two weeks. At that time she had improved so that she left the bed and began stirring about in spite of a chilly day. She was taken with a chill and a rise in temperature to 101 $\frac{2}{5}$ that night. Mercurochrome should have been repeated at this time but it was decided to try pelvic lavages. The colon bacillus was found to be the etiological organism. In spite of nine thorough pelvic lavages extending from December 1st to January 13th, the patient continued to have chills and a variation in temperature from 97 to 102 and 104. Following a chill on January 13th, mercurochrome was started again with an intravenous dose of 27 c.c. The temperature began to fall to normal by the 16th. From this time on the patient made an uneventful recovery though two small intravenous doses were given for good measure.

Case 4—Mrs. C., white, married, primipara, age twenty-five, was admitted to the Hospital December 26, 1924, with a diagnosis of puerperal septicemia. During the second stage of labor, twenty-eight days prior to admission, she was badly lacerated. Three or four days following delivery she was taken with a chill and high fever. Her temperature continued to run around 104 and 105 and on admission to the Hospital she was extremely weak, pale, and in a serious condition.

December 27th, Leucocytes 19,000, Polys 86 per cent. Catheterized specimen showed a severe acute nephritis. Temperature varied from 100 $\frac{2}{5}$ to 104 $\frac{1}{5}$.

December 29th, 30 c.c. blood was taken for blood culture which later showed staphylococcus albus.

December 31st, Leucocytes 24,000, Polys. 89 per cent. Catheterized specimen did not show any change in kidneys. Forty-eight c.c. of $\frac{1}{2}$ per cent solution gentian violet was given at 2:40 P. M., with temperature 103 $\frac{2}{5}$, pulse 114. No reaction followed.

January 1, 1925, temperature continued its usual variation. No change noted in patient's condition up to the 3rd.

January 3rd, 25 c.c. of 1 per cent mercurochrome given at 2:15 P. M. Chill at 3:00 P. M. Later complained of headache and backache. Vomited. Refused supper. Extremely nervous at 6:00 P. M. Temperature reached its

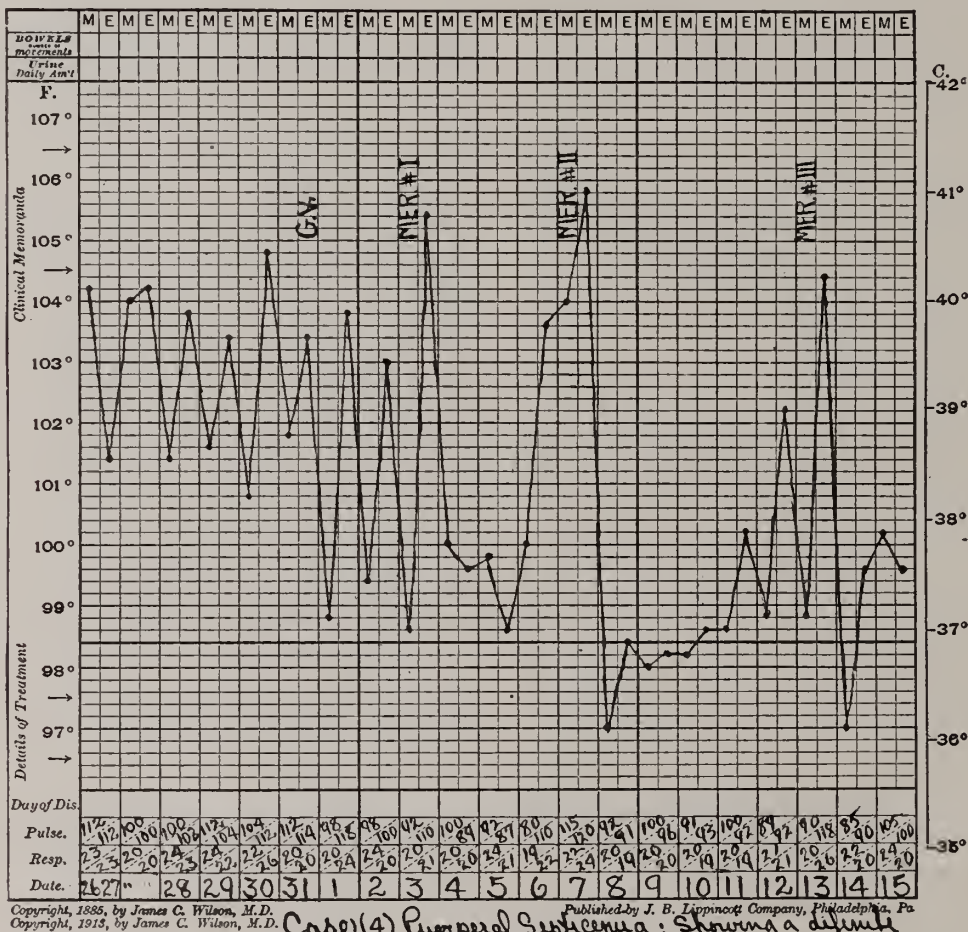
maximum at 10:00 P. M., 105 2/5, pulse 110. Began to feel better and slept fine. Developed a diarrhea.

January 4th, temperature at 6:00 A. M. 100, pulse 100. Temperature at 5:00 P. M. 97, pulse 84. Patient felt fine in spite of continued diarrhea.

January 6th, temperature continued normal until the sixth when it went to 103 3/5 at noon, pulse 110.

January 8th, temperature at 6:00 A. M. 97, pulse 92.

January 13th, patient had been sleeping better and a marked improvement in general appearance noted. Diarrhea stopped on the 10th. Temperature began to rise again on the 11th and went to 102 1/5 on the 12th. The third injection of mercurochrome (25 c.c.) was given intravenously at 1:10 P. M., with the temperature at 99, pulse 90. One hour later patient



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Case (4) Purpural Septicemia: Showing a definite response to Intravenous Mercurochrome.

January 7th, temperature did not fall back to normal. Diarrhea stopped. Mercurochrome 1 per cent, 23 c.c. was given at 10:30 A. M., with temperature at 100, pulse 80. Temperature began to rise and at 5:00 P. M. stood at 105 4/5, pulse 120. Diarrhea began again about two hours after injection. She also vomited and had a chill. Nausea and vomiting continued at intervals until 6:00 P. M. Patient slept all night and felt fine the next morning.

became nauseated, vomited, and had a chill. The maximum temperature was reached at 5:00 P. M. 104 2/5, pulse 118. No diarrhea followed this injection. Patient had a comfortable night and felt fine the following morning.

January 14th, temperature at 6:00 A. M. 97, pulse 85.

January 16th, blood culture reported negative. Patient continued to improve and temperature remained normal.

January 19th, Leucocytes 11,000, Polys 72

per cent. General appearance and condition satisfactory. Marked improvement in kidneys. Patient made an uneventful recovery and was discharged as cured on February 1st.

Case 5—Mr. W. A. W., single, white, age 21, a case of acute rheumatic fever with a severe endocarditis, was seen in consultation about four weeks after onset of illness. The patient was still unconscious, in a profuse sweat, and his joints markedly swollen. Leucocytes 24,000, blood culture negative. Temperature variations were from 101 to 104 and 105. Several physicians who had been called into see the case stated that it was hopeless. In spite of the inevitable grave prognosis and the failure of all previous treatments the idea of giving this patient intravenous mercurochrome as a last resort and a possible life saver was immediately denounced by them because of risk. After a conference with the family, the attending physician was given consent to try mercurochrome therapy. Mercurochrome, 1 per cent, 30 c.c. was given about 2:30 P. M. with the temperature at 104, pulse 116, and respiration 48. Twenty minutes later patient was taken with nausea, vomiting, and a severe chill which lasted fifty-five minutes. On the following morning the patient was more rational, temperature 99, pulse 80, and respiration 24. From this time on the entire picture of the patient's condition changed and he made an uneventful recovery.

COMMENT.

The writer is not too over-enthused when he states that mercurochrome therapy has played an important part in these cases as well as others. Nor have his eyes been blind to the fact that mercurochrome is not a "panacea for all ills." It has its limitations just as other drugs and, because all cases treated with it do not recover or show improvement, the iron clad conclusion should not be drawn, as some men have, that its field of usefulness is nil. Most of this conclusion may be attributed to three factors:

1. Some physicians are never willing to accept the new regardless of supporting experimental facts.

2. Others draw conclusions merely on hearsay and without experimental evidence conducted on their part.

3. One of the main factors is the promis-

uous use of the drug and, unless this be discouraged, it will naturally bring whatever merit the treatment possesses into disrepute.

One is naturally confronted with the question as to whether or not the miraculous recovery was a coincidence. This is not as easy to prove as you might think as each case is individualized and life is at stake. Granting, however, that some of the results may be a coincidence, yet, after a consideration of a number of cases reported in the literature, the writer is satisfied that lives have been saved by mercurochrome therapy that would have made a lethal exodus if the ordinary medical and surgical treatments had been followed.

The therapeutic value of intravenous mercurochrome does not rest entirely upon its antiseptic value but, in the writer's opinion, the altered body metabolism, as evidenced by the nausea, vomiting, chill, rise in temperature, diarrhea, and increase in leucocytes which plays a greater part. In this connection, it was hoped that the treatment of chronic cases of arthritis would be beneficial but as some evidence of changed metabolism was observed, the results are no more discouraging than the treatment of these conditions by the injection of foreign proteins. Undoubtedly the acute and subacute cases will give more favorable results.

There are a few points that the writer desires to stress. That this method has its dangers is undoubted but they can be prevented if proper care is taken. A careful consideration of the patient's general condition is important in order that the initial dose may not be large. If a proper reaction is not obtained, the dose should be increased. Physicians are to be warned that a continued diarrhea may eventuate in the death of the patient and it must be checked if the stools become too numerous or the patient grows weaker. One case is known to the writer in which the patient had approximately thirty stools within a period of thirty-six hours and, becoming greatly weakened and exhausted by this condition, she soon made a lethal exodus. The writer has found paregoric to be a suitable intestinal splint for such a condition. Another point to be noted is that the temperature may serve as one of the main guides as to the progress of the case and repetition of the injections.

109 North Union Street.

THE RELATION OF THE SURGEON TO THE ROENTGENOLOGIST, PATHOLOGIST AND FOLLOW UP RECORD.*

By G. CARLYLE COOKE, M. D., Winston-Salem, N. C.
Department of Surgery, Lawrence-Cooke Clinic.

One writer of authority has said that the average practitioner with the only apparatus which he is accustomed to have at his finger tips can make 85 per cent of his diagnoses correctly, and yet we continue to increase our laboratories and make use of numerous skilled specialists in behalf of diagnosis. That correct diagnosis is our greatest asset to successful surgery, goes without saying, and it is upon the 15 per cent correct diagnoses that our success mostly depends. The very fact that the greater part of our time, energy and money are spent in efforts to correctly determine the condition of 15 per cent of the cases is sufficient evidence to lead one to believe that we have been striving for greater development through poorly planned channels of study. With this in view and in hearty sympathy with the constant struggle for increased efficiency in diagnosis, I present this essay as a suggestion to that end.

We should hold the history and physical examination as the most important data obtainable and these should not be lost sight of at any point during the study of a case. These should be as important in the mind of the roentgenologist and pathologist as in that of the surgeon, because it is not for the benefit of the individual case alone that we study it, but should be another effort toward better acquainting ourselves with disease conditions, and every case that every doctor has the privilege to observe, whether from a surgical, roentgenological or pathological standpoint, should be a new page in the study of human ailments. An old and often practiced idea that the technician should not know the history or physical examination, in order that he may give an unbiased opinion, is erroneous, because the history is the best guide to well directed investigation, excepting of course, those conditions in which well known pathognomonic signs have been well established. It is possible, however, that some cases are obscure because the sign or symptom has not had time to develop, and it is in the obscure condition that we should insist upon more scientific

system of investigation. In fact it is reasonable to believe that our ability to check the ever raging cancer scourge will not come about by any great sensational discovery, but through methods of more early diagnosis.

Even when the diagnosis is fairly certain from the history and physical examination, it is often very gratifying to the surgeon to have his opinion corroborated by laboratory findings, and as a result the roentgenologist usually has the first vision of things under the surface. The man who interprets this vision certainly plays a great part in the final result. The X-ray never lies but its interpretation requires more than speculative consideration. How should the roentgenologist get his training? Usually the roentgenologist has gained his knowledge of the subject by the teachings and observations of other men, who have formulated conclusions, many of which are incorrect, and does not progress rapidly beyond this teaching, but remains content to leave things as they have been taught, not being able to detect that course which does not "run true to course" and continues to make errors.

Surely it is not an intention to require the surgeon to be an expert roentgenologist or pathologist, but every person who takes upon himself the responsibility of relieving 100 per cent of the surgical class of disease should be thoroughly familiar with X-ray possibilities. No two persons are capable of always viewing the same thing in the same light; therefore the surgeon should go with his patient to the X-ray room and view the same screen and plate with his co-worker at the same time in full consideration of the history and physical examination. By this practice in our clinic, we have been able to effect some remarkable results which otherwise may not have been. Previously knowing the actual topography as well as the nature of a lesion often gives the surgeon time to plan some procedure before operation. Mention of one case in this connection is worth while, a case in which an almost complete transformation was made in a young woman by performing a gastro-enterostomy. There was no disease of the stomach nor duodenum other than a congenital kinking of the duodenum causing a six hour retention.

Likewise, the roentgenologist should not be content to confine his research to the laboratory alone, but should follow his case to the

*Presented to the Interstate Post-Graduate Assembly Clinic Tour, May 29, 1925, on board the S. S. Doric.

operating room, if possible assist in the operation as often as can be arranged, there view and examine those organs by actual sight which he has viewed by shadow only. This should be done not only to verify his impression, but if there be an error to ascertain the cause for his error. In this way and this way only will the roentgenologist be able to increase his efficiency or exceed the ability of his predecessors. Just as much as the surgeon should the roentgenologist study the history and physical examination of the patient and keep them in his record.

Along with the surgeon and the roentgenologist at every operation on obscure conditions should be their most intimate co-worker, the pathologist. He also should know all that can be found out about the case, not altogether for his opinion as to the preoperative diagnosis, but so that he can keep in mind the symptoms that his pathological tissue produced during life, its rate of development, distribution, mode of operation and the result of surgical treatment. He should see the morbid anatomy, the diseased tissue *in situ*, the condition of tissues in juxtaposition as well as remote, all in direct association with the surgeon and X-ray man. Pathologists in general have had a tendency not only to urge postmortem study, but have been content with the study of dead pathological material or at least with the specimen in the laboratory. This is a condition of affairs that I believe has caused the lack of more advanced knowledge along many lines. By reviewing the work of McCarty, the careful thinker cannot but be impressed with the great possibilities in the future for a real understanding of cell activity, and after all disease begins in the cell.

Then after the specimen for microscopic study has been obtained, and all has been done for the patient's health and happiness that is possible through surgery, none of the three students' study is complete, but together they should view the microscopic picture in every detail and all the observations recorded. Such correlation of impressions will serve to render a more dependable diagnosis in future cases, by checking the accuracy of the interpretation of X-ray shadows, the surgeon's ability to determine and allay disease conditions at operation, general increase in the understanding of the disease, and placing each on a

stronger foundation for self-confidence and accuracy.

By conducting our work at the Lawrence-Cooke Clinic through such a routine, we have been able to make a record for our last two years' work of 100 per cent correct diagnoses in disease of bone, according to reports by either Dr. Bullitt, of Chapel Hill, or Dr. Bloodgood, of Baltimore, Md., who have checked our findings in all doubtful cases, and approximately 98 per cent in gall-bladder disease with or without stones, gastric and duodenal ulcer, primary appendiceal disease and kidney conditions. Accuracy in diagnosis has not been the only benefit derived from this routine, but a clearer understanding of the morbid process prevails which has been of equal benefit in treatment. For instance, we have found in our run of cases that gall-bladder disease has been more often the cause of a six hour gastric retention than primary disease of the stomach or duodenum, and when this condition ensues, removal of the organ has been the only cure. We have been led to consider infection of the gall-bladder according to the point of attack. In a series of over 100 gall-bladders studied, all have shown a characteristic picture on screen and plate; many similar cases previous to two years ago had been erroneously interpreted as disease of other organs or simple spasm. Gall-bladders containing stones never show a normal mucous membrane and contain contaminated bile, usually healthy walls and no adhesions, while most of those with adhesions do not have stones and many show an intact mucous membrane. The muscular and subserous layers of the latter show marked round cell infiltration; thus the inference that blood borne infection results in an interstitial inflammation, producing thickened, noncontractile walls and adhesions to other viscera. This accounts for the chronic so-called indigestion or "after-meal distress," most usually not a typical gall-bladder colic, coming on in early life and not associated with stones. Simply breaking up adhesions around the apparently normal viscus will not effect a cure, because of the spread of infection by continuity of tissue to the liver and other surrounding organs, and finally the organ becomes a point of focal infection within itself.

On the other hand, if the infection begins in the mucous membrane from infection that

has filtered through the liver from the portal circulation into the bile, bacteria and infectious debris are present in the bile sufficient to form the nucleus of stones, in which condition we have invariably found scarring and every evidence of previous liver infection, whether or not the patient has had colic attacks. This was illustrated well in one patient, age 14 years, from whom we removed a gall-bladder containing several large stones. These as well as observations in many different lines through this form of study have brought results that we could not have had in any other way.

Now last, but not least, have we cured the patient? Time and time only will tell the story that gives us true statistics, determines our ultimate reputation and worth to the community. A well systematized and persistently worked follow-up record is a receipt for our material investment, and will show our dividends or loss, which is equally as important to each of the three co-workers for future investment.

There are also several factors to be considered when counting the worth of follow-up records. First, if you are dependent on the patient's statement, it is necessary to know whether or not he has paid his bill when unsatisfactory results are reported. Our records show that far greater numbers report unsatisfactorily when they are in debt to the clinic. Again, it is necessary to know whether the patient who answers that he is not well is suffering from the old disease or a new one. Other patients have a mental attitude toward life that renders their report worthless from a statistical standpoint. After all, this is a plea for us all to strive ever upward and not allow ourselves to become narrow in our fields of usefulness through the practice of specializing.

Analyses, Selections, Etc.

Experiences at the Piedmont Sanatorium in Management of Tuberculosis in Colored Patients.

Our readers may find profit in noting the clinical experiences and observations of Dr. H. G. Carter, the superintendent of Piedmont Sanatorium, at Burkeville, Va., in the management and care of cases of tuberculosis in the colored race, as recorded in the biennial report of that institution, ending June 30, 1925.

Through the kindness of Dr. E. G. Williams, the Commissioner of Health, we are permitted to make certain excerpts from this report. The scientific

quality of the work is happily reflected in this report. Physicians in Virginia may feel that the professional management of this institution is in skillful hands.—*Editor's Note.*

DIET

Under stimulation of the Health Commissioner we have paid closer attention to diet during the last twelve months than at any time during the life of the institution. This has reflected in a higher food cost in the past twelve months. It isn't what is served but what is eaten. We have since the summer of 1924 had nutrition classes. We select those who are losing in weight or whose weight is stationary. The nurse helps these patients to select their food, makes an accurate estimate of calories taken at each meal. This serves the double purpose of giving the patient an idea of what they are getting and gives the nurses a good course in dietetics. Strange to say this nutrition class is rather unpopular. In some cases the unpopularity serves a good purpose in that they will eat to get off the nutrition class and consider it a great compliment to be taken off. Theoretically it is an excellent idea to let one know just how many calories are required to sustain life and increase in weight and to check this with the amount they are consuming. We find however that if they do not want it it is extremely hard to make them eat regardless of whether they have the correct number of calories. We believe that the nutrition class and the close attention paid to diet has been of a great deal of benefit to the institution. One year ago we were getting from our herd about thirty-five gallons of milk per day and no one seemed to be complaining of scarcity of milk; now we get seventy-five and eighty gallons per day for the same number of patients and it is all used. While we were buying eggs we bought about three crates per week; now that we use eggs from our hennery, we feed from six to seven crates per week. We are positive of the fact that we have not cut down on purchase of supplies enough to make the difference between thirty-five and eighty gallons of milk and three and seven crates of eggs, yet we feel that the benefit derived more than pays us for this increase of cost.

HELIO THERAPY

In order to be with the crowd at the present time it is necessary that one be conversant with the thoracoplasty and heliotherapy. With the

former we have had no experience and have to confess ignorance regarding its value except from literature. During the present biennium we have had no cases in which this operation is indicated.

We have used heliotherapy by both direct sunlight and mercury quartz lamp in a limited manner, the sunlight for several years and the mercury lamp for the last eighteen months. We have confined the use of sunlight entirely to extra pulmonary cases with fairly good results. Our objection to the use of direct sunlight is that in winter the varying conditions of climate at times necessitates the discontinuance of treatment for several weeks at a time. In summer the intense heat is the objection.

Theoretically, there are more of the ultra violet therapeutic rays in the sun's spectrum during the winter months. There are also more therapeutic rays at mid-day than early morning and late in the afternoon. This would make the sun's rays most valuable about mid-day during July and August, and in our climate it is not practical to make use of them at this time. It is claimed by those who have done research work along this line that a great many of the ultra violet rays are filtered out of the sun's spectrum before reaching the earth at our altitudes, this being due to the dust, smoke, etc., found in the lower strata of air. It is certainly true that the best results in the treatment of tuberculosis by direct sunlight has been obtained by Rollier and others whose sanatoria are situated in high altitudes. Rollier says the greater the difference between sun temperature and shade temperature the less the danger of general derangement, and the less the difference the greater the danger. This will constitute another handicap in lower altitudes.

Our experience with the mercury quartz lamp has been more extensive and has given more uniformly favorable results, mainly I think because it can be used every day in the year with even regularity. We have treated during the past eighteen months twenty-six cases after excluding all cases who have not taken the lamp as long as two months; among those excluded we have every variety of ailment from toothache to a pain in the toe and most of them have thought themselves greatly improved. We considered this mostly psychical, but in the twenty-six cases recorded we were treating a definite ailment and did not

regard its results unless they were definite. Of these twenty-six cases treated eighteen showed improvement and eight no improvement. Seventeen gained weight, seven lost weight, two were stationary; in nine of them the treatment was general following the general technique described below, in seventeen the treatment was local.

We treated only five cases of uncomplicated pulmonary tuberculosis. Three of these were improved by treatment and two were made worse, one of them having a severe hemorrhage. The three cases that improved under treatment were all afebrile and were either stationary or improving very slowly. They were the ones to whom we gave tuberculin eight years ago. (I wonder if the lamp will follow the fate of tuberculin). Two of the uncomplicated cases classed as far advanced gained an average of eighteen pounds in one hundred and eighty days. The two that were made worse by treatment might have been due to our inexperience in the use of the lamp. I am thoroughly convinced that mercury quartz lamp has a decidedly beneficial effect when carefully used in the suitable case, but I am also thoroughly convinced that its effect can be most injurious when not properly used.

We obtained our best results in the use of the mercury quartz lamp in complicated tuberculosis. We treated two cases of enteritis, but our results were entirely unsatisfactory. Both of them were far advanced cases of pulmonary tuberculosis and were made worse by treatment.

Two cases of tuberculous peritonitis were treated. In these two patients we got our most marked results. One of them had been operated on with no result. He came in to us running a temperature of 103. He began to show results in about two months and at the end of ten months' treatment he was running a normal temperature and had gained sixty pounds. He had slight involvement in his lungs. The other case of tuberculous peritonitis gained thirteen pounds in nine months and lost a temperature of 101. We treated eight cases of adenitis; six of the eight cases being cervical adenitis. Six of these eight cases improved under treatment and two were unimproved. Five of the cases complicated by early pulmonary tuberculosis gained an average of eleven pounds each. One case complicated by

an advanced case of pulmonary tuberculosis gained four pounds. Two lost weight. All of these eight cases received local treatment and none of them were apparently made worse by treatment. We treated eight cases of tuberculous arthritis; seven of them complicated by advanced pulmonary tuberculosis and one of them by early pulmonary tuberculosis. As in adenitis the case complicated by early pulmonary tuberculosis showed marked improvement. Five of the seven cases complicated by advanced pulmonary tuberculosis showed improvement. In addition to the above we treated one case of X-ray burn which at first showed marked improvement and later on broke down.

Our use of the mercury quartz lamp then may be summed up by saying that our results have been most satisfactory in the treatment of peritonitis, adenitis and arthritis, the results being most marked in those cases with slight pulmonary involvement. We have used the mercury quartz lamp very sparingly in uncomplicated pulmonary tuberculosis, and in two out of five the results were other than what we desired. I would caution against the indiscriminate use of either direct sunlight or the mercury quartz lamp for pulmonary tuberculosis, and I am of the opinion that the indiscriminate use of either would be followed by results just as disastrous as was tuberculin when given by the unskilled to cases with temperature and hemorrhages. I do not believe that either direct sunlight or mercury quartz lamp should be used except under the direct supervision of a doctor and I believe that doctor should have paid some special attention to the proper use of heliotherapy.

CALCIUM CHLORIDE

Although we claim no originality in the use of calcium chloride in tuberculosis, we want to go on record as calling attention to this very useful and much neglected therapeutic agent in the treatment of tuberculosis of the intestines. Dr. Fishberg, of New York, and Dr. Minor, of Asheville, have written of the benefits to be derived from the use of calcium chloride in articles appearing in current journals. Our results have fully borne out results recorded by these writers. In about 75 per cent of cases of tuberculous enteritis complicating pulmonary tuberculosis we have found it to be of a great use in the palliative treatment of

the symptoms of intestinal tuberculosis. We consider that in several cases we have gotten decidedly permanent results, so that we can go further and say that we consider it also a therapeutic agent of some curative value. It is however of greatest use as a palliative agent.

The symptoms of advanced disease of the intestines are most distressing with its severe colicky pains and persistent diarrhoea. These symptoms as stated above are either entirely cleared up or are greatly improved by the use of calcium chloride in about 75 per cent of cases.

We give calcium chloride in 5 c.c. doses repeated in from three to seven days; usually starting the first dose with 2½ c.c. The symptoms usually respond to treatment after from three to six doses.

Book Announcements

The Art of Medical Treatment, With Reference Both to the Patient and to His Friends. By FRANCIS W. PALFREY, M. D., Visiting Physician, Boston City Hospital; Instructor in Medicine, Harvard University. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 463 pages. Cloth, \$4.50 net.

Development of Our Knowledge of Tuberculosis. By LAWRENCE F. FLICK, M. D., LL. D., Co-founder of Rush Hospital for Diseases of the Chest; Ex-President of the International Anti-tuberculosis Association; Author of "The Crusade Against Tuberculosis—Consumption a Curable and Preventable Disease." 738 Pine Street, Philadelphia, 1925. Octavo of 783 pages. Cloth, \$7.50.

Simplifying Motherhood. Being a Handbook on the Care of the Baby During the First Year. By FRANK HOWARD RICHARDSON, M. D., Brooklyn, N. Y., Regional Consultant in Diseases of Children to the N. Y. State Department of Health; Chief of Nutrition Class, Brooklyn Hospital; Editor, Archives of Pediatrics, etc. Containing a Chapter on Breast Feeding by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. G. P. Putnam's Sons, New York and London, The Knickerbocker Press. 1925. 263 pages. Illustrated. Cloth, \$1.75.

The Medical Record Visiting List or Physicians' Diary for 1926. Revised. New York. William Wood & Company, Medical Publishers. 60 patients per week size, \$2.00.

This Record contains a number of interesting medical facts known as "Emergencies," and tables. The table on Dosage has been carefully revised to conform to the recent revision of the U. S. Pharmacopeia.

The Visiting List is also supplied in 30-patient and 90-patient sizes.

Proceedings of Societies

MEDICAL SOCIETY OF VIRGINIA.

Minutes of General Session

TUESDAY, OCTOBER 13, 1925.

The Medical Society of Virginia opened its fifty-sixth annual meeting in the auditorium of the Jefferson Hotel at 8:00 P. M., and was called to order by Dr. Thomas D. Jones, Chairman of the Committee on Arrangements.

The invocation was pronounced by the Rev. George E. Booker, D. D., of Richmond.

Dr. C. C. Coleman, of Richmond, delivered an address of welcome on behalf of the Richmond Academy of Medicine.

In the absence of Dr. J. Fulmer Bright, Mayor of Richmond, an address of welcome on behalf of the City of Richmond was delivered by Dr. W. B. Foster, Director of Public Welfare.

Dr. Clifton Miller made some announcements in regard to future meetings and entertainments.

Dr. Hunter H. McGuire, President, Winchester, read his presidential address, "Contributions of Ophthalmic Science to Progressive Medicine."

While the audience stood, Dr. Charles M. Edwards, Chairman of the Necrological Committee, Richmond, read the names of forty-two members of the Society who had died during the past year. (See report of Business Sessions).

The report of the Delegates to the American Medical Association was read by Dr. Southgate Leigh, of Norfolk. (See report of Business Sessions).

The following papers were read:

"Observations of a Medical Man Among the Primitive Malay Tribes of the Sulu Archipelago," by Dr. David T. Gochenour, Stuarts Draft.

"The Relations Between Quackery and Scientific Medicine in Virginia," by Dr. Isaac Peirce, Tazewell. "Race Improvement," by Dr. W. A. Plecker, State Registrar of Vital Statistics, Richmond.

The meeting then adjourned.

WEDNESDAY, OCTOBER 14, 10:00 A. M.

The Medical Society of Virginia met in the auditorium of the Jefferson Hotel, and was called to order by the President, Dr. Hunter H. McGuire.

Dr. Gerald A. Ezekiel, of Richmond, gave a case report entitled, "Progress Report on a Case of Pulmonary Tuberculosis Treated by Thoracoplasty."

The following three papers, comprising a symposium on Puerperal Infection, were read:

(a) "Prevention of Puerperal Sepsis," by Dr. Burnley Lankford, Norfolk.

(b) "Manifestations and End Results," Dr. L. A. Calkins, University.

(c) "Treatment," Dr. Benj. H. Gray, Richmond.

These papers were discussed by Dr. Greer Baughman, Richmond; Dr. M. Pierce Rucker, Richmond, and by Drs. Lankford, Calkins, and Gray, in closing.

A paper entitled "Individual Preventive Medicine," was read by Dr. Warren T. Vaughan, Richmond, and was discussed by Drs. W. A. Plecker, State Registrar of Vital Statistics, Richmond; N. T. Ennett, Richmond; Roy K. Flannagan, Assistant State Health Commissioner, Richmond; Walter Cox, Winchester;

A. A. Houser, Richmond, and by Dr. Vaughan, in closing.

Drs. E. C. Harper and C. W. Scott, of Richmond, presented a paper entitled, "The Diagnostic Standards of the Virginia Field Clinics."

The meeting then adjourned, that the members might attend a luncheon at Pine Camp, as guests of the City of Richmond.

WEDNESDAY, 3:00 P. M.

The meeting was held in the auditorium of the Jefferson Hotel, with Dr. McGuire, President, in the chair.

Dr. Ennion G. Williams, State Health Commissioner, Richmond, read a paper entitled, "The Legitimate Boundaries of Public Health Activities," which was discussed by Drs. K. D. Graves, Pearisburg; Isaac Peirce, Tazewell; Charles Phillips, Medical College of Virginia, Richmond; J. D. Willis, Roanoke; T. Latane Driscoll, Richmond; Warren T. Vaughan, Richmond; J. B. Jones, Petersburg; R. A. Martin, Petersburg; J. B. Jones, Petersburg; Mr. A. H. Straus, Director of State Laboratory, Richmond; Dr. ———, and in closing, by Dr. Williams.

Dr. A. Murat Willis, Richmond, read a paper entitled, "The Present Status of the Treatment of Ulcer of the Stomach and Duodenum," and Dr. I. A. Bigger, University, read a paper entitled, "Simple Ulcer of the Intestine." These papers were discussed by Drs. James W. Hunter, Norfolk; P. St. L. Moncure, Norfolk; Douglas VanderHoof, Richmond; Warren T. Vaughan, Richmond, and in closing by Dr. Bigger.

A paper entitled, "Indications for and against Abdominal Drainage," was read by Dr. W. Dennis Kendig, of Kenbridge.

Dr. J. Shelton Horsley, Richmond, presented a paper entitled, "Partial Gastrectomy: Its Indications and Technic" (Lantern Slides).

Dr. Wm. B. Porter, Roanoke, read a paper entitled "The Toxic Manifestations of Digitalis" (Lantern Slides).

A paper entitled, "Roentgenological Study of the Large Intestine" (Lantern Slides), was read by Dr. S. B. Whitlock, Norfolk, and was discussed by Dr. J. Lloyd Tabb, Richmond.

The meeting then adjourned.

WEDNESDAY, 8 P. M.

A general meeting was held at this time, open to the public, at which moving pictures were shown on "Gastric Motor Phenomena," "Gastric Ulcer," and "Pulmonary Tuberculosis."

THURSDAY, OCTOBER 15, 9:00 A. M.

The Society met in the auditorium of the Jefferson Hotel, and was called to order by Dr. E. C. S. Taliaferro, Norfolk, in the absence of the President and the Vice-Presidents.

A paper entitled, "Cutaneous Tests in the Diagnosis of Syphilis," was read by Dr. Dudley C. Smith, of the Division of Dermatology and Syphilology, University.

Dr. Samuel Newman, Danville, read a paper entitled, "A Graphic Presentation of Nutritional Disturbances of Infancy."

A paper entitled, "The Treatment of Appendicitis: One Thousand Cases," was read by Dr. G. Paul LaRoque, Richmond, and was discussed by Drs. E. J. Moseley, Richmond; C. J. Andrews, Norfolk; Charles R. Robins, Richmond; J. W. Preston, Roanoke, and Walter Cox, Winchester, and in closing, by Dr. LaRoque.

Dr. Charles R. Robins, Richmond, read a paper entitled, "A Helpful Point in the Technic of Appendectomy," which was discussed by Dr. W. A. Brumfield, Blacksburg, and in closing, by Dr. Robins.

A paper entitled "Stricture of the Ureter," by Drs. C. J. Andrews and W. B. Martin, Norfolk, was read by Dr. Andrews. The discussion was opened by Dr. Martin, and the paper was then discussed by Drs. Austin I. Dodson, Richmond; Lawrence T. Price, Richmond; Burnley Lankford, Norfolk; R. D. Bates, Newtown; Charles R. Robins, Richmond, and Linwood D. Keyser, Roanoke, and in closing by Dr. Andrews.

Dr. R. L. Raiford, Sedley, read a paper entitled, "The Challenge of the Patient with Chronic Disease."

Dr. J. Allison Hodges, Richmond, presented a paper entitled, "A Valuable Sign in the Early Ataxic Stage of Tabes."

A paper on "Spinal Punctures in Neurosurgical Diagnosis" was read by Dr. J. G. Lyerly, Richmond, and was discussed by Drs. C. C. Coleman, Richmond, and R. Finley Gayle, Richmond.

The paper of Drs. Dean B. Cole, F. S. Johns, and P. E. Schools, of Richmond, entitled "Lung Collapse in the Treatment of Pulmonary Tuberculosis," was read by Dr. Johns. Discussed by Drs. Gerald A. Ezekiel, Richmond, and Frank B. Stafford, Charlottesville, and in closing, by Dr. Johns.

Adjourned.

THURSDAY, 3:00 P. M.

The Society met in the auditorium of the Jefferson Hotel, and was called to order by the President, Dr. Hunter H. McGuire.

By **Special Order**, the Report of the House of Delegates was read by the Secretary of the Society, and it was moved and seconded that the report be approved as read.

Dr. Wendell C. Phillips, of New York City, President-elect of the American Medical Association, addressed the meeting on "The Achievements of the American Medical Association," and showed a number of lantern slide pictures of the A. M. A. plant in Chicago.

Major H. L. Freeland, M. C., U. S. A., Richmond, gave a short address on the Medical Officers' Reserve Corps.

A paper entitled, "Notes on the Weights of Some Vital Organs: The Development, Variability, and Relation to Disease," was read by Dr. R. Bennett Bean, University.

Dr. St. George T. Grinnan, Department of Pediatrics, Medical College of Virginia, Richmond, read a paper entitled, "Xerophthalmia in Infants," which was discussed by Drs. W. B. McIlwaine, Petersburg, and Fletcher D. Woodward, University, and in closing, by Dr. Grinnan.

Dr. Robert S. Preston, Richmond, read a paper entitled, "Ova in Transduodenal Drainage," which was discussed by Dr. W. A. Brumfield, Blacksburg, and in closing by Dr. Preston.

A paper entitled, "Some Indications for Calcium Therapy," was read by Dr. O. O. Ashworth, Medical Department St. Elizabeth's Hospital, Richmond, and

was discussed by Dr. W. A. Brumfield, Blacksburg, and by Dr. Ashworth in closing.

The meeting then adjourned.

THURSDAY, 8:00 P. M.

A public meeting of the Society was held in the Jefferson Hotel auditorium, with Dr. Hunter H. McGuire, President, presiding. The program for the evening consisted of three papers by invited guests.

Dr. George E. de Schweinitz, Philadelphia, read a paper entitled, "Concerning Headaches in Relation to Distinctive Features."

A paper entitled, "Problems in Medical Diagnosis," was presented by Dr. Alfred Stengel, of Philadelphia.

Dr. David S. Hillis, Chicago, read a paper on "The Obstetric Forceps Operation."

The meeting then adjourned that the members might attend a reception and dance at Commonwealth Club.

FRIDAY, OCTOBER 16, 9:00 A. M.

The Society met in the auditorium of the Jefferson Hotel, and was called to order by the President.

Dr. T. Latane Driscoll, Associate in Syphilology, Medical College of Virginia, Richmond, read a paper entitled, "Indications and Limitations of Anti-luetic Drugs," which was discussed by Drs. L. F. James, Richmond, and H. O. Bell, Wilmington, and in closing, by Dr. Driscoll.

Dr. Robert P. Kelly, Lynchburg, read a paper on "The 'Pathologic' Vomiting of Pregnancy," which was discussed by Dr. David S. Hillis, of Chicago.

The Clerk of the Executive Council not being present, the report of a called meeting of the Council held on Thursday evening, October 15th, was read by Miss Agnes V. Edwards, Secretary, and was adopted.

The President announced that a full report on the Gorgas Memorial Institute had been received, but had not been read, because of lack of time, and that this report will be published in the Journal. (See Report of Business Sessions).

On motion of Dr. Isaac Peirce, Tazewell, a vote of thanks was extended to the City of Richmond, for the entertainment provided for the Society, to the local committees, to the Hermitage Club, to the Jefferson Hotel, and to the people, especially the ladies, of Richmond.

On motion of Dr. J. W. Dillard, of Lynchburg, the retiring President was elected an Honorary Member of the Society.

Dr. A. F. Wood, Parksley, read a paper entitled, "An Excuse for Only One Attendance Upon the Medical Society in Twenty-Seven Years of Membership—Good and Bad Years. Will an Atheromatous Heart in the Final Stages of Decompensation Come Back? How May We Persuade It?"

A paper entitled, "Complications of Pulmonary Tuberculosis," by Dr. H. G. Carter, Burkeville, was read by Dr. Cornelia Segar, of Burkeville, and was discussed by Drs. H. U. Stephenson, Richmond, and W. A. Brumfield, Blacksburg.

The Society then adjourned sine die.

Minutes of Business Session

HOUSE OF DELEGATES.

The House of Delegates of the Medical Society of Virginia held its first regular meeting at the Jefferson Hotel, Richmond, Virginia, at 9:00 A. M., October 13, 1925. The meeting was called to order by the President, Dr. Hunter McGuire, of Winchester.

The roll call showed an attendance of forty-four delegates and ten councilors. There being a quorum, the President called for the report from the MEMBERSHIP COMMITTEE, as its Chairman, Dr. J. A. White, could not stay for the whole meeting. The names of ten applicants were recommended for active, and two for associate membership:

ACTIVE MEMBERS.

Dr. W. Preston Burton, Boissevain.
 Dr. James D. Clements, Ordinary.
 Dr. Samuel T. Elliott, Phenix.
 Dr. Rogers N. Harris, Port Royal.
 Dr. W. Herbert Lewis, Lawrenceville.
 Dr. Stewart McBryde, Manassas.
 Dr. John C. Phipps, Fries.
 Dr. Charles Wm. Scott, Port Republic.
 Dr. Rachael F. Weems, Harrisonburg.
 Dr. Estridge P. White, Odd.

ASSOCIATE MEMBERS.

Dr. Stanton K. Livingston, U. Pa. Hospital, Philadelphia.

Dr. T. M. Turner, Springton, W. Va.

It was moved, seconded and carried that these men be admitted to membership. The name of one applicant, residing in a county in which there was a component society, was referred to that society.

The report of the Secretary was next read:

Report of the Secretary-Treasurer.

To the Members of the House of Delegates of the Medical Society of Virginia:

I have the honor to submit the following report:

Total membership reported at 1924	
Meeting	1,839
New members enrolled since then.....	72
Members reinstated	9
	1,920
Lost by death	42
Resignation	15
Lost and dropped for non-payment....	25
	82
Net total.....	1,838

We have been advised during the year of meetings of the Executive Council and the Publication Committee.

Dr. Southgate Leigh, delegate, and Dr. E. C. S. Taliaferro, regularly elected alternate, represented our Society at the 1925 meeting of the American Medical Association. Dr. J. A. Hodges, one of the two regular delegates being detained at home by illness. In accordance with the new apportionment of delegates to the American Medical Association, we are advised that for the next three years our Society will be entitled to send three delegates to the A. M. A. meetings.

Last November your secretary attended the annual conference of secretaries of constituent state medical associations, to which the secretaries and editors of the State journals are invited, expenses being paid by the American Medical Association. It is something on an inspiration to inspect the plant of the A. M. A. and to come in contact with such a large number of people imbued with enthusiasm for organization work.

Hanover County Medical Society, having complied with conditions stated at the 1924 meeting, applied for and received a charter from this Society early in the year.

In accordance with a motion made by the Executive Council, at its midwinter session, the President appointed Dr. Israel Brown, chairman, and Drs. J.

K. Hall and W. L. Peple, as a committee to investigate the question of Industrial Insurance.

He also appointed Dr. Garnett Nelson as a delegate from this Society to the annual meeting of the Medical Society of the State of North Carolina, and named Dr. E. C. S. Taliaferro chairman of the Committee on Walter Reed Memorial, vice, Dr. Garnett Nelson, who was unable to serve as chairman.

In response to an appeal from the War Department, that a Military Committee be appointed by our Society to develop greater interest on the part of our membership in the Medical Officers' Reserve Corp, the President appointed the following as a Military Committee of the Society: Dr. Garnett Nelson, chairman, and Drs. B. B. Dutton, B. R. Kennon and J. T. McKinney.

Dr. Stuart McGuire and Dr. Lomax Gwathmey were appointed by the President as delegates from our Society to the mid-year meeting of the American Association for the Study of Goiter.

Application is in hand from the Piedmont Medical Society, composed of ten counties, for a charter from the State Society.

A request has been received from the Giles County physicians, through the Southwestern Virginia Medical Society, that they be admitted into the membership of the Southwestern Virginia Medical Society, rather than be placed in a society composed of physicians in a distant and remote section of the State.

Four suits against members for alleged civil malpractice are now pending, the legal defense given by the society being claimed in each case.

Terms of five of the councilors expiring with this meeting, vacancies will have to be filled for two councilors from the State at large and in the fifth, seventh and eighth districts. No nominations have been reported to the Secretary's office from the Congressional Districts.

Nominations of members on the Virginia State Board of Medical Examiners are in order this year, as the term of office of all of its members expires in April, 1926.

On the whole, greater interest seems to have been displayed by councilors in the component societies, several societies having reported visits from their councilors.

This year, at our Registration Bureau, we have an exhibit of Hygeia, the A. M. A. magazine of individual and community health, and suggest that our members visit this as well as the scientific and commercial exhibits.

As matters to receive the consideration of this body, we would suggest that some measure should be adopted whereby councilors should accept it as a duty to visit all societies in their respective districts at least once a year, even if it becomes necessary so to do upon their own invitation; that some provision should be made for prorating dues of members received after the first of July; and that an amendment be made in the By-Laws by which the President, rather than the Council, may be empowered to fill vacancies in committees in the interim between meetings, owing to the impracticability of getting a meeting of the Council at any and all times that such an emergency may exist.

We take this opportunity to thank all members of the Society for their co-operation during the past year. With a continuance and enlargement of this support, the Medical Society of Virginia should accomplish greater things another year.

It was moved and seconded that this be received and filed. Adopted.

The report of the Treasurer was presented as follows:

Financial Report of Secretary-Treasurer for 1924.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR THE VIRGINIA MEDICAL MONTHLY AND OF THE MEDICAL SOCIETY OF VIRGINIA, FOR THE YEAR ENDING DECEMBER 31, 1924.

Cash in bank, January 2, 1924-----	\$2,081.42
Total receipts, January 2-December 31, 1924-----	\$15,880.04
Total disbursements, January 2-December 31, 1924-----	13,528.84
	<u>2,351.20</u>

Total on hand December 31, 1924-----\$4,432.62

Receipts

VIRGINIA MEDICAL MONTHLY

Advertising -----	\$7,326.87
Subscrip. non-members -----	170.65
Subscrip. members (\$2 each) -----	3,135.75
Interest on bank balances -----	50.52
Sundries -----	198.01
	<u>\$10,881.80</u>

MEDICAL SOCIETY OF VIRGINIA

Dues less \$2, each member (journal) -----	4,698.75
Interest on bank balances -----	50.52
Sundries -----	248.97
	<u>4,998.24</u>
	<u>\$15,880.04</u>

Disbursements

VIRGINIA MEDICAL MONTHLY

Preparation of Journal -----	\$7,450.03
Salaries -----	1,900.00
Postage -----	284.13
*Sundries -----	426.84
	<u>10,061.00</u>

MEDICAL SOCIETY OF VIRGINIA

Salaries -----	1,900.00
Postage -----	233.67
Legislative Committee -----	326.05
Legal Defense -----	30.00
*Sundries -----	978.12
	<u>3,467.84</u>
	<u>13,528.84</u>

\$ 2,351.20

*The item "Sundries" covers rent, up-keep of office and fixtures, stationery, traveling expenses of councilors, legal assistance to one county in a case in court, etc.

Of balance of \$4,432.62, there is available for operating expenses -----\$1,055.87
For legal defense ----- 3,376.75

Available for Legal Defense.

Balance from 1922 -----	\$ 412.25
In 1923 -----	1,431.50
In 1924 -----	1,533.00
	<u>\$3,376.75</u>

AGNES V. EDWARDS,
Secretary-Treasurer.

It was moved, seconded and adopted that this be received and filed.

In response to request by the Secretary-Treasurer, the President stated that he thought it proper that the society appoint a committee to audit the Treasurer's books. Dr. Gray stated that he believed this was a matter to receive the attention of the council.

The President called attention to the fact that the terms of three of the district councilors expire at this meeting; those from the 5th, 7th and 8th districts. If nominations have not been made for these districts, a special meeting should be called to make nominations to fill the vacancies.

Next in order was the report of the Executive Council, which was read by its Secretary, Dr. L. T. Price:

Minutes of The Executive Council of The Medical Society of Virginia.

The Executive Council of the Medical Society of Virginia held a meeting in the Society's office in Richmond, January 30th, 1925.

Present: Drs. Israel Brown, John Staige Davis, M. T. McCulloch, Isaac Peirce, W. B. Martin, T. A. Kirk, A. L. Gray, Lawrence T. Price, Dr. Hunter McGuire, president, and Miss Agnes Edwards, Secretary-Treasurer, the two last named being ex-officio members.

Dr. A. L. Gray, Chairman, called the meeting to order and recited the purpose of the call meeting, namely, the time, place and character of 1925 meeting of the Society, and other matters.

Dr. Gray read an invitation from the Richmond Academy of Medicine and Surgery to meet in Richmond.

Moved and seconded that the Society would not have a centennial medical exhibit this year. Adopted.

Moved and seconded that the chairman appoint a committee of three to investigate the advisability of having a medical exhibit at some future time and to report to the Council at its next meeting. Adopted.

Moved and seconded that the invitation of the Richmond Academy of Medicine and Surgery for the Society to meet in Richmond in 1925, be accepted, and that the secretary write a letter to the secretary of the Richmond Academy of Medicine and Surgery accordingly. Adopted.

Moved and seconded that the date of the meeting of the Society for 1925, be October 13th, 14th, 15th, and 16th. Adopted.

Correspondence between the secretary of the Medical Society of Virginia and Dr. A. G. Horton, of Ocean View, Va., was read, pertaining to a suit which had been entered against Dr. Horton for \$10,000.00 for malpractice. Dr. Horton desired information regarding payment of the attorney's fee for his defense. Dr. Martin made a report on the case. Dr. Israel Brown made a motion which was seconded by Dr. McCulloch, that the Executive Council appropriate \$250.00 to pay the counsel of Dr. Horton for his defense for alleged civil malpractice. Adopted.

Dr. Martin made a motion which was duly seconded, that hereafter, before any appropriation be made for legal defense for alleged civil malpractice, an investigation be made by the Councilor of the district in which the suit is brought and reported to the Council. Adopted.

The President, Dr. Hunter McGuire, called attention to the resolution passed at the Staunton meeting, pertaining to Dr. A. M. Willis' paper. The mat-

ter was referred to the chairman of the program committee.

Miss Edwards, Secretary of the Medical Society of Virginia, read her financial report for the year 1924. It was moved and seconded that the chairman appoint a committee, consisting of himself and the clerk, to inspect the report. Adopted.

Dr. Israel Brown made a motion which was duly seconded that the Council request the President of the Society to appoint a committee for the purpose of making a survey of industrial insurance, which committee would make a report to the Society at its next meeting. Adopted.

Moved and seconded that the expenses of the Councilors attending this meeting be paid by the Secretary, upon presentation of statements. Adopted.

Miss Edwards was requested to make a list of the various subjects which she wished the Council to discuss and act upon at its next meeting.

Motion made and seconded that Miss Edwards be directed to write the presidents of each of the component societies of the Medical Society of Virginia, requesting that they arrange for meetings of their respective societies and that they invite a member of the Council to visit the societies at that time. Adopted.

Motion was duly made and seconded that Dr. Gray's action in regard to writing certain letters to the various members of the Senate pertaining to the postal rates on second class postage, be approved. Adopted.

There being no further business, the meeting adjourned.

LAWRENCE T. PRICE,
Clerk.

It was moved and seconded that this be received and filed. Adopted.

Dr. Gray stated that the Secretary's report contained certain recommendations which should be definitely determined—one of these the amount that the Society should contribute for legal defense. He moved that the report of the Secretary-Treasurer be referred to the Executive Council for consideration at a later date. This was seconded and adopted.

The reports were now called for from the standing and special committees.

JUDICIARY COMMITTEE: It was stated that the Chairman, Dr. W. F. Drewry had not come, and would report at a later meeting.

LEGISLATIVE COMMITTEE: No report.

PUBLICATION COMMITTEE: The Chairman, Dr. A. G. Brown, reported several meetings well attended, at which a good deal of business was transacted, though nothing that would be of special interest to the House of Delegates.

At this point Dr. McGuire stated that as no Vice-President was present, he would have to be excused to preside over the general meeting, and would turn over this meeting to the Chairman of the Executive Council, Dr. A. L. Gray. Dr. Gray took the chair and first called for reports from special committees.

AUDITING COMMITTEE: No report.

AUTOMOBILE INSURANCE COMMITTEE: The Chairman, Dr. A. L. Gray, stated that several years ago this committee was appointed to decide upon the means of handling automobile insurance for members. After investigation, they recommended the Lumberman's Mutual Casualty Company, which does a large business. Many of our members have placed insurance with this company. He stated that the company charges the regular rate for insurance, and that at the end of the policy year returns to its

policyholders dividends which have never been less than twenty-five per cent, and the best part of it is that we have our insurance in a perfectly reliable company.

LIBRARY COMMITTEE: The Chairman, Dr. I. C. Harrison, stated that he had not been able to call a meeting of the full committee, but that Miss Edwards had been kind enough to give him some information regarding the library from which he made his report.

Report of Library Committee.

The Library Committee submits the following report: During the last two years there have been eleven calls for books; only one request has come from a doctor outside of Richmond and the others by some half dozen doctors in Richmond. There is no catalogue of the books in the library and no file of the periodicals, except of the *Virginia Medical Monthly* and the *A. M. A. Journals*. We lack the facilities and equipment for keeping the books.

The library consists entirely of periodicals which come to the Secretary's office and such books as publishers send for review or announcement in the *Journal*. There have been no gifts of books from members of the Society or others. We suggest that this committee be instructed to prepare a letter to be sent by the secretary to each member of the Society, inviting contributions of medical books to the library, and asking the co-operation of all the local, county and city medical societies in the State. With proper facilities, we feel that our Secretary could look after these books and in time we could have a real library.

Dr. E. C. S. Taliaferro stated that many members of the Society knew nothing of the library in the Society's offices and that notices to this effect might be published in the journal, as it would save postage and the trouble of getting out letters, and also that members might be asked to contribute books to the library.

NECROLOGICAL COMMITTEE: It was stated that the report of this committee was made by its chairman, Dr. C. M. Edwards, on the first evening. During the past year, the Society has lost forty-two members by death. The list is as follows:

MEMBERS OF THE MEDICAL SOCIETY OF VIRGINIA, WHOSE DEATHS HAVE BEEN REPORTED SINCE THE MEETING IN STAUNTON, OCTOBER, 1924.

Dr. Edgar Ackley Moore, Marshall, Va.
Dr. Theodore Hough, University, Va.
Dr. Hermann Boerhaave Anderson, Noel, Va.
Dr. James Adolphus Rice, Heathsville, Va.
Dr. John Nottingham Upshur, Richmond, Va.
Dr. Robert French Compton, Charlottesville, Va.
Dr. James Terrell Redd, Churchland, Va.
Dr. Edward May Magruder, Charlottesville, Va.
Dr. Albert Sidney Priddy, Colony, Va.
Dr. Charles Allen Saunders, Norfolk, Va.
Dr. Allen Granberry Thurman, Appomattox, Va.
Dr. John F. Ragland, Jr., Petersburg, Va.
Dr. Howard Fletcher, Warrenton, Va.
Dr. Julian A. Norfleet, Norfolk, Va.
Dr. Thomas J. Kasey, Newport News, Va.
Dr. Silas M. Stickley, Stephens City, Va.
Dr. Albert Cullen Fox, Waynesboro, Va.
Dr. James Fulton Williams, Charlottesville, Va.
Dr. John Diedrich Moritz, Charlottesville, Va.
Dr. Carl Meach McCuiston, Petersburg, Va.
Dr. Samuel H. Moseley, Ebony, Va.
Dr. Elias M. Wilkinson, Shaft, Va.
Dr. William Wamach Chaffin, Pulaski, Va.
Dr. William Henry Edmundson, Christiansburg, Va.

Dr. Andrew Symington Ellett, Christiansburg, Va.
 Dr. Albert Earle Holmes, Salem, Va.
 Dr. John W. Williams, Irwin, Va.
 Dr. Malcolm Graham Robinson, Wytheville, Va.
 Dr. Virginius Harrison, Richmond, Va.
 Dr. Oscar Littleton Powell, Onancock, Va.
 Dr. George Harrison Sparks, Brandy Station, Va.
 Dr. Oscar Henry Coumbe, Washington, D. C.
 Dr. Henry Morgan Miles, Norton, Va.
 Dr. Robert Jackson Yates, Potomac, Va.
 Dr. Linwood D. Watkins, Richmond, Va.
 Dr. George Thomas Divers, Stuart, Va.
 Dr. Bernard W. Switzer, Lexington, Va.
 Dr. Patton Kimbrough Pierce, Eutaw, Ala.
 Dr. Carlisle Lamar Nottingham, Cape Charles, Va.
 Dr. Richard Urquhart Burges, Norfolk, Va.
 Dr. George Tucker Harrison, University, Va.
 Dr. George C. Hall, Richmond, Va.

COMMITTEE ON HOSPITALS: No report.

COMMITTEE ON COOPERATION WITH THE STATE DEPARTMENT OF HEALTH IN ITS CHILD HYGIENE WORK: No report.

COMMITTEE ON COOPERATION WITH THE STATE NURSES' ASSOCIATION: The chairman, Dr. J. A. Hodges, reported that the Committee had been rather inactive because of his illness. At this time, the Chair stated the pleasure of Dr. Hodges' friends in having him with the Society after his long illness, the House rising to join in this expression. In a few appropriate words, Dr. Hodges thanked his friends for their interest and good wishes.

CANCER COMMITTEE: No report.

PUBLIC HEALTH EDUCATION: Dr. A. L. Gray read the following report, which had been prepared by its chairman, Dr. R. K. Flannagan:

Report of The Public Health and Education Committee of The Medical Society of Virginia.

The Public Health and Education Committee of the Medical Society of Virginia confines its report for this year to the public health aspect of its duties, feeling that the importance of the subject and the facts entitle it to special emphasis. We call the Society's attention to the following observations and recommendations:

The medical profession of Virginia is not taking the interest in public health development that the importance of the subject or the profession's position as a pioneer and leader in the fields of preventive medicine warrants. The profession, therefore, is in danger of losing leadership in health matters.

This state of affairs is not in the interest of the public, the public health or of the medical profession.

Definite governmental organization for the adequate control of disease is an inevitable social development. That the profession shall continue to lead and not be a follower or obstructionist in this development is of great consequence to medical men.

The discovery and development of the science of Preventive Medicine is the greatest achievement to the credit of the Medical Profession in all the years of its honorable history.

The foundational work of the physicians, Jenner, Virchow, Koch, Lister, Ehrlich, Ross, Carter, Reed, Gorgas, Trudeau and hosts of others have placed the world forever in their debt, and the world knows and acknowledges the obligation. Every avenue of publicity is now contributing to the instruction of the public in the principles of disease prevention, and the demand for proper health protection is steadily growing.

Upon the physician has the public relied for the

application of this health knowledge and the eradication of communicable disease.

Though many progressive physicians are applying preventive principles in their private practice and are co-operating fully with health authority, where such authority is established, many others entirely neglect their duty in this regard, and some are frankly antagonistic.

A large proportion of Virginia physicians are not reporting regularly to the State Board of Health. The passive disregard of large numbers of medical men of the preventive side of their profession and the antagonistic attitude of others towards efforts looking to the establishment of local whole-time health organizations should challenge the attention of the Medical Society of Virginia. The promotion of the public health is a fundamentally important governmental matter, and the public is beginning to perceive that while medical leadership in the control of disease and the promotion of health is highly desirable, such leadership is not indispensable since more and more non-medical health officers are being placed in charge of health departments. The control of communicable disease, the systematic reduction of the number of physical disabilities, and defects of infancy and childhood and the establishment of healthful environmental conditions can only be done satisfactorily by a whole-time health organization, having sanitary officers and public health nurses under medical supervision. In those localities where the medical profession is actively interested and united on a public health program, effective public health organization has been established with a consequent reduction of the communicable disease rate and the proportion of defects and disabilities of childhood.

In the localities where organized health work is established it does not appear that the medical profession is less enlightened or less prosperous than where no health work exists. If there is any difference, the contrary is true. We believe that well organized whole-time health services in city, town and country will educate the people to consult the physician early, and thus in the long run while not injuring the medical profession financially will reduce the number of premature deaths and tend to confirm the physician in the dignified and solid place in the public esteem he now occupies. It is a fact, however, that whether the establishment of organized health service benefits the profession or not, it does benefit the public, and the organized medical profession cannot in justice to itself afford to be lukewarm in regard to it.

We recommend that the State Medical Society go on record as unreservedly favorable to the establishment of adequate whole-time health service in our cities, towns and counties. We recommend further that the State Medical Society urge affiliated societies to appoint public health committees whose duty it will be to secure information as to the public health needs of the counties and municipalities represented by its membership and formulate and press to completion a program looking to the establishment of a whole-time health organization in each locality which will meet at least the minimum needs.

Respectfully submitted,

ROY K. FLANNAGAN, *Chairman*,
 J. H. HIXEN,
 C. B. BOWYER.

*Committee on Public Health and Education,
 Medical Society of Virginia.*

After free discussion, Dr. H. B. Spencer moved that the following resolution suggested by the committee, be adopted.

In conformity to the recommendations contained in the report of the Public Health and Education Committee, the following resolutions are adopted:

Resolved: That the Medical Society of Virginia hereby reiterates its adherence to the principles of preventive medicine and urges upon each city, town and county in the State the desirability of establishing and properly supporting adequate whole-time public health organization,

Resolved, further, That each Medical Society in the State affiliating with the Medical Society of Virginia be, and, is hereby urged to form a public health committee among its members whose duty it shall be to formulate and carry out a program for the organization of adequate whole-time health service in the cities, towns and counties from which its members are drawn.

Seconded by Dr. W. M. Burwell and carried.

TRANSPORTATION COMMITTEE: No report.

WALTER REED MEMORIAL COMMITTEE: The chairman, Dr. E. C. S. Taliaferro, stated that they had been unable to have a meeting, but that they wish to raise some money to help with this.

LEGAL DEFENSE COMMITTEE: No report.

COMMITTEE ON INDUSTRIAL INSURANCE: The chairman, Dr. Brown, stated that they were not quite ready to make a report at this meeting.

COMMITTEE ON MEDICAL OFFICERS' RESERVE CORPS: No report.

Under unfinished business, the resolution favoring an educational campaign for the promotion of periodic health examinations by the family physician, adopted at the meeting last year, was brought up. It was stated that no committee had been appointed to consider this and no special plan of action had been decided upon. Correspondence received from the American Medical Association with regard to periodic health examinations, was referred to a committee composed of Dr. Wm. M. Burwell, chairman, and Drs. A. F. Robertson and M. A. Johnson.

Dr. Isaac Peirce presented the following as a proposed amendment to the By-Laws with regard to having the district councilors visit all county societies in their districts at least once a year:

We, the undersigned, in accordance with the suggestion made in the Secretary's report, wish to propose that an amendment be made to our By-Laws, whereby it be incumbent upon our District Councilors to visit all the societies in their districts, at least once a year, with an idea of assisting them in perfecting their organizations and increasing their interest in the State Society.

Signed:

W. M. BURWELL,
ISAAC PEIRCE,
D. M. KIPPS.

This was referred to the Executive Council.

It was stated that there were a number of communications and that these would be referred to a committee composed of Dr. E. C. S. Taliaferro, chairman, and Drs. I. A. Bigger and K. D. Graves, to receive consideration.

Dr. Israel Brown stated that he had tried to organize the inactive societies in his district with no success, and suggested that the secretary should visit inactive societies with the various district councilors, and that both working together might be able to accomplish more in the organization work. Dr. R. Bruce James thought it would be better to have

a doctor paid to do this work, as he did not feel that a layman could be as successful in reaching the profession as another doctor. It was moved and seconded that Dr. Brown's suggestion be referred to the Executive Council. Carried.

Dr. Southgate Leigh, delegate to the American Medical Association, stated that his report had been presented the previous night so that it would hardly be necessary to read the full report, but that he would present some recommendations which the delegates had prepared as a result of their report.

Report of Delegates to the American Medical Association.

(Read before the General Meeting.)

The strength, influence and effectiveness of the American Medical Association is in direct proportion to the interest taken in the National Organization by its constituent parts, the various State Associations. Its control rests entirely with these State Associations through their delegates, who elect its officers and determine its policies.

It is doubtful if the individual members of the Virginia State Society understand the exact situation. We have been so apt to look upon the National Organization as a self-perpetuating concern and have failed to realize that the doctors of Virginia have just as much to say in the management of that body, as those of any other state with the same representation. On more than one occasion your delegates have cast the deciding votes in matters of great importance, including the election of the higher officers; and requests and suggestions from this State have always been given the most careful consideration.

At this time, in particular, the management of the A. M. A. is desirous of establishing the most intimate relationship with the doctors of Virginia, and has arranged for the President-elect to attend our meeting and discuss certain weighty matters with our membership.

Dr. West, of Tennessee, who in addition to his duties of Secretary, has been made General Manager, has in conversation with your delegates, and by letter, urged that Virginia shall make more use of the extensive facilities and advantages of the A. M. A., and in turn co-operate more fully with the National Organization in the serious matters and problems which are now confronting the profession.

Foremost among these is the organized efforts of the irregulars of the country to force through the various state legislatures Medical Practice Acts permitting men with little or no education to practice their various cults.

On this point President Haggard spoke in part as follows:

"If laws are enacted inimical to public health and derogatory to the medical profession and jeopardizing its development, the profession has no right to blame Congress or any state legislature, unless it has brought the situation to their attention in a timely, intelligent and effective way. To do this requires effective organization and machinery; for without such organization and machinery, it is impossible to know what is going forward in a legislative way, to determine promptly sound policies for the profession with respect to such matters, and then, to make the voice of the profession heard and its influence felt in legislative bodies with respect to them. If I seem overinsistent in the matter of organization, it is because of the individualistic character of the physician's work and his too frequent

failure to appreciate the importance of mass action to achieve results. . . ."

Each and every one of us should constantly remember and act on the principle so aptly expressed.

"It is not the individual,

Or the army as a whole,

But the everlastin' team-work,

Of every bloomin' soul."

States which have fully organized and have active county societies have little trouble in defeating such pernicious legislation. Their experience is that it is simply a matter of education of the public which can be easily done through local county units.

Next to the influence of the local societies, nothing would have greater weight than the wide circulation of "Hygeia." This magazine is most admirably edited, its contributors being among the best minds in America. Notwithstanding the urgent demand of delegates from practically every state in the Union for its publication, its circulation of 30,000 is disappointing. The A. M. A. is sparing no expense in its make-up, losing over \$40,000.00 a year on its publication.

Your delegates would call your attention to the fact that three years ago we were instructed by this society to urge the A. M. A. to publish a medical magazine for the public. We presented the resolution and did everything possible to hasten the publication of the new journal. We have, however, been greatly disappointed at its reception in Virginia, in which state only 169 doctors are subscribers and 268 of the laity.

The following resolution was introduced by Dr. A. E. Bulson, Jr., of Indiana, and adopted:

"That the House of Delegates recommend that every fellow and member of the American Medical Association subscribe for 'Hygeia' and that the magazine be kept in reception rooms of their offices in order that the circulation of this wonderful journal of individual and community health be encouraged among the public."

Monthly readings from "Hygeia" are broadcasted from Station KYW, Chicago.

At the 1924 meeting the Judicial Council brought in a strong report advising against encouraging the work of Life Extension Institutes and urging that more attention be paid to periodical health examinations by the individual physicians. Quoting from this year's report:

"The conclusion of the Council, which was endorsed and accepted by the House of Delegates, was to the effect *that the proper person to make periodic examinations and to give advice relative thereto is the family physician, aided when necessary by local specialists*; and that indirect medical services through a third party could not redound to the benefit either of the public or of the physician. . . .

"The Judicial Council desires to express again its firm conviction that *the benefits of scientific medicine cannot be adequately delivered to the individual through the medium of a third party*, and that the communication of results of physical examination and the general advice with which it should be associated should go directly from the individual physician to his patients. As was stated in the report of the Council submitted at the Chicago Session, the relation between the patient and the physician is an individual matter, and anything that disturbs this relationship is detrimental to the best interests of the patient."

The House of Delegates again met in committee

of the whole to discuss this important matter and passed the following resolution:

"It is the sense of this Committee of the Whole that every fellow and member of the American Medical Association should live up to the spirit of the Report of the Judicial Council."

Wide discussion of this matter took place and it developed that it was the unanimous opinion of the House of Delegates that no member of the Association should aid or abet the commercial organizations either in *an advisory capacity or as examiner*.

During the meeting three very prominent fellows, who through misunderstanding, still remained on the advisory board of an Institute, telegraphed in their resignations and so announced to the association.

Great stress, however, was laid on the necessity for periodical health examinations by regular physicians, and the proper education of the public by state and county societies. Regular blanks may be obtained if desired from the A. M. A. offices.

Your delegates took up with the Chairman of the Judicial Council the question of how best to inform the public, and were advised that it would be considered entirely ethical for local societies to communicate, in an appropriate manner, with the public, through the press.

In several states the Public Health Departments have co-operated effectively in propaganda for periodical health examinations as a prophylactic measure.

The Council on Medical Education, headed by Dr. Wilbur, made a most interesting report of its investigations. The United States has now eighty medical schools, one-fourth of the world's supply, with an enrollment of over 13,000 students, the number increasing at the rate of 1,000 a year, notwithstanding more stringent requirements. The medical curriculum is under investigation and needs revising. At the present rate the number of physicians in proportion to population will be normal by 1930. Considerable work has been done in standardizing graduate medical schools. "Hospitals have rapidly increased in numbers in nineteen years, from 2,411 in 1906, to 7,370 in 1925. The greatest increase in these years has been in the hospitals having from ten to twenty-five beds. The total bed capacity has increased from 217,658 in 1906 to 813,926 in 1925."

A special committee is studying the nurse situation with a view to bringing about better co-operation with the medical profession.

Some progress has been made towards shortening the pre-medical course in grammar and high school, and consideration given to the suggestion of cutting the medical course to three years.

Dr. Wilbur thinks that one or two years can be saved in grammar and high school, and one year in medical school, and that the medical curriculum needs changes which will be brought about.

He feels that much can be done in standardizing hospital service for the interne.

The House again urged its officers to obtain modifications of the Volstead Act in order to permit the physician to prescribe properly for his patients.

The House strongly condemned the action of the Government in providing for medical and hospital treatment for World War veterans for disabilities having no connection with their war service.

The Scientific Assembly was opened by an address of President Haggard, on "The Romance of Medicine," which was delivered to an audience of 5,000 people. 318 papers were read before the various sections.

The exhibits were elaborate and instructive, including pathological, educational, lectures and moving pictures, with an extensive commercial exhibit.

There were also a number of diagnostic clinics.

The attendance from Virginia was the largest we have ever had.

Re-apportionment gives us an additional delegate, making three in all for next year.

Dr. Wendell C. Phillips, of New York, was elected President and Dallas chosen for the next meeting.

By resolution, the various delegates were requested to make full reports and take every step possible to bring about a more complete affiliation between the state associations and the National Organization.

In conclusion, we would quote from the remarks of the Speaker of the House:

"This federacy, which makes possible our American Medical Association, represents the medical profession of America. We stand before the people of the nation, representing a science that is concerned with the welfare of all mankind. A tremendous power for good is under our control. A tremendous responsibility is therein entailed. The consciousness of that responsibility cannot be lightly assumed."

SUPPLEMENTARY REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

(Read before House of Delegates and Executive Council.)

In addition to the report to the general meeting, your delegates would state as follows:

1. *Graduate Extension Courses* are being most successfully conducted in several states, and are greatly to the advantage of the "stay at home" doctors. We would urge that this matter be given serious consideration.

2. *Organization.* In comparison with other states, Virginia is not reaping all of the good results of organized medicine, and especially at this time with quackery fighting the profession so vigorously and with unlimited means. An organization in each county of the state would defeat such pernicious efforts.

We would particularly call your attention to the new constitution and by-laws recommended for state societies. From this we would quote section two of the by-laws and recommend that this at least be adopted at this meeting.

"Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and to keep in touch with the activities of and to aid in the betterment of the component societies of his district. He shall make an annual report of his work, and of the condition of the profession of each county in his district at the annual session of the House of Delegates. The necessary traveling expenses incurred by each Councilor in the line of duties herein imposed may be allowed on a proper itemized statement, but this shall not be construed to include his expenses in attending the annual session of the Association."

In practically every other state in the Union the Councilors have this authority and duty.

3. *Life Extension Institutes and Periodical Health Examinations.* Last year these matters were brought before you so hurriedly that there was no time for vigorous action. We would urge that you give earnest consideration to both of them. Other State Associations are insisting that their members sever all connection with the Life Extension Institutes, either

as advisors or examiners, and are also taking active steps to arrange for periodical health examinations by the regular profession, with propaganda through the press and in collaboration with the State Board of Health.

We would urge similar action for this State.

4. *Hygeia.* We would urge that vigorous steps be taken to extend the circulation of this magazine among both doctors and laymen.

5. *Full Delegation to A. M. A.* It is exceedingly important that our society shall have its entire number of delegates attend the meetings of the A. M. A.

We would respectfully suggest that in your appointing of delegates and alternates, arrangements be made whereby the full number may be present.

Virginia is now entitled to three delegates.

6. *Bristol Members.* We would suggest that investigation be made of the status of members from Bristol, Tenn., and West Virginia, and especially to see if the laws of the A. M. A. concerning membership in state organizations are being complied with.

7. *New Management.* The A. M. A. is now in control of practically new officers, who are exceedingly anxious to co-operate with this state society in every possible way, and have requested us, as your delegates, to convey to you their cordial good wishes. They are especially anxious to have the officers and committees of this Association call upon them frequently both by letter and in person.

8. *Secretary.* We would strongly advise that the Secretary of this Society be authorized to attend regularly the annual meetings of the A. M. A., as well as the meeting of secretaries, which she already has permission to attend.

9. *In conclusion,* we would say that our work, while arduous, has been exceedingly pleasant, and has opened up to us a new vision in the world of organized medicine.

Respectfully,

SOUTHGATE LEIGH,

E. C. S. TALIAFERRO.

Delegates.

The resolutions were referred to the Council.

Dr. E. C. S. Taliaferro presented a motion that the delegates from this Society to the American Medical Association should be made members of the House of Delegates of the State Society. As this would be an amendment to the By-Laws this was referred to the Executive Council.

There being no further business, the House adjourned to meet on Thursday morning at 9 a. m.

HOUSE OF DELEGATES

The second regular meeting of the House of Delegates of the Medical Society of Virginia was held at Jefferson Hotel, Richmond, at 9 A. M., October 15, 1925.

Dr. Wendell C. Phillips, President-elect of the American Medical Association, addressed the House. In his talk he stressed the fact that the county society is the unit upon which the state organization should be built. He stated that from information he had received, our Society is not as fully organized as it should be and cited instances of the good work accomplished in a number of states in which organization methods obtain. He announced that he would address the general meeting this afternoon on "The Achievements of the American Medical Association."

The Secretary then called the roll, and a quorum was found present.

Minutes of the last meeting of the House were read and approved.

Report of the Executive Council was next read by its clerk, Dr. L. T. Price.

Report of Executive Council.

The Executive Council of the Medical Society of Virginia held its annual meeting at the Jefferson Hotel, at 6 o'clock Wednesday evening, October 14, 1925, the Chairman, Dr. A. L. Gray, presiding. The meeting called to order. Roll called showed a full attendance.

Present: Dr. A. L. Gray, Chairman, Drs. Isaac Peirce, L. T. Price, J. B. Nicholls (acting for Dr. H. H. Trout), W. B. Martin, J. Staige Davis, C. P. Jones, Israel Brown, W. D. Kendig, D. H. Mason, T. A. Kirk, Walter Cox (for Dr. R. L. Page), Hugh McGuire, J. A. Gilmer (for Dr. C. W. Bowyer) and M. T. McCulloch (for Dr. P. K. Graybill).

The minutes of the previous meeting were read by Dr. L. T. Price, and were received, approved and filed.

Dr. Israel Brown, Chairman of the Committee on Survey of Industrial Insurance, submitted his report.

Report of Committee on Industrial Compensation.

We believe that the purpose of the Compensation Law is to render assistance and medical attention to those of the employees that are injured, the cost of this being added to the cost of the manufactured article, and finally paid for by the consumer, and justly so, though it is an indirect tax. With this we have no cause of complaint.

We believe as with the law that the medical fees should be just and reasonable, now that it is to the interest of the insurance companies to make these fees as low as possible, though not conserving the best interest of the employer or employee. In some instances the fees are incompatible with reasonable professional service.

The Workman's Compensation Law of Virginia as far as the Medical Profession is concerned, is a just and reasonable one.

We believe it would be to the best interest of those concerned that a physician should be a member of the Industrial Commission of Virginia; lacking this, that there should be an advisory committee of three physicians appointed yearly by the President of the Medical Society of Virginia, to whom all disputed claims of physicians before the Commission should be referred for final action. In this way the interest of the Medical Profession will be best conserved and will not be a question of professional service bartered for and sold to the lowest bidder.

Respectfully submitted,

ISRAEL BROWN,
W. J. PEPLE.

It was moved and seconded that it be adopted.

Dr. Brown made a subsequent report regarding certain cases of alleged malpractice in the courts of Norfolk, stating that they will be continued and that no conclusive action had been arrived at. The question of establishing a minimum and maximum amount for legal defense in each case was discussed, but no final action arrived at. The Council felt that it should act on each specific case as it was reported to the Council.

Motion was duly made and seconded that the President of the Society, Chairman of the Executive Council, and District Councilor from District in which

case is cited, shall decide what action shall be taken in each instance. Carried.

Dr. H. U. Stephenson, Chairman of the Legislative Committee, reported that because of the Legislature not having met since last meeting of the Society, there had been no occasion for his committee to act on any matters.

The Committee on Correspondence submitted their report, which was read by the clerk:

YOUR COMMITTEE ON CORRESPONDENCE begs to submit the following report:

We recommend that the physicians of Giles County be allowed to join the Southwestern Virginia Medical Society, their petition having been signed by every doctor in Giles County.

That a copy of the Hygeia Magazine be mailed to each member of the Legislature in Virginia.

That the Council draw up suitable resolutions requesting the National Conference on Street and Highway Safety to make special provision for doctors when on emergency calls.

That the request of the Piedmont Medical Society for a charter be granted.

That the matter of placing a suitable tombstone to mark the grave of Doctor Mettauer be referred to the Executive Council.

That a committee of three be appointed from the Council to study the proposed changes in the Constitution and By-Laws and that their report be made at the next annual meeting of the Society.

That the letter from the American Foundation be referred to the Executive Council.

That a suitable resolution be drawn up by the Executive Council, requesting Congress to deduct from the income tax expenses incurred by medical men in attending medical meetings and post-graduate courses.

Respectfully submitted,

E. C. S. TALLIAFERRO,
I. A. BIGGER,
K. D. GRAVES.

This was now open to discussion.

Motion was duly made and seconded that the request of the Giles County physicians that they be allowed to join the Southwestern Virginia Medical Society be granted. Adopted.

A recommendation that the Hygeia magazine be mailed to each member of the Legislature was discussed at length and it was decided not to do so.

The subject of special privileges being requested for physicians from the National Conference on Streets and Highways was discussed and dismissed without action, the feeling being that the matters had best not be acted on officially, as those present stated that they had been treated courteously in this respect and should they take it up officially, it might do more harm than good.

A letter was read from Dr. Lewis Holladay, Secretary of Piedmont Medical Society, requesting a charter for that society, composed of the ten counties of Albemarle, Louisa, Nelson, Orange, Culpeper, Fluvanna, Green, Madison, Buckingham and Spotsylvania. After discussion, it was moved and seconded that they be recognized as a District Society and be entitled to one delegate in the House of Delegates of the Society, but that they could not be granted a charter unless the independent societies in the District Society relinquish their charters. Adopted.

During discussion of subject of granting a charter to Piedmont Society, Dr. C. P. Jones stated that should a charter be granted that Society, similar

rights should be extended the Walter Reed Medical Society, composed of the counties of Gloucester, Mathews, Middlesex, King and Queen, York, James City, Elizabeth City, Warwick, Isle of Wight, Nansemond, Accomac and Northampton. The same action was taken with regard to the Walter Reed Medical Society as with the Piedmont Medical Society.

The recommendation regarding the placing of a suitable tombstone to mark the grave of Dr. John Peter Mettauer was discussed and a motion was made, duly seconded and carried that the chairman of the Council appoint a committee of three to look into the matter and report at the next meeting of the Society.

The recommendation that a committee of three be appointed by the Council to study and recommend proposed changes to the Constitution and By-Laws was next brought up. It was moved, seconded and carried that the Chairman of the Executive Council appoint a committee for that purpose.

A letter was read from the American Foundation maintaining the American Peace Award, in which they asked that the Society, by suitable resolution, express its emphatic desire for a record vote of the Senate on the Court on the Harding-Hughes terms. By action, this was laid on the table.

The recommendation that the Executive Council request Congress to pass such measures as necessary for the allowance of deduction for expenses in attending medical meetings and post-graduate courses in computing income tax returns was discussed at length, and a motion was duly made, seconded and carried that this matter be laid on the table.

The question of organizing and re-organizing county medical societies received a great deal of discussion, and a motion was made, seconded and carried that one thousand dollars, or as much thereof as is necessary, be authorized to be expended by the Secretary of the Society for that purpose. The Councilors from the various districts are to co-operate with and assist in this work as far as possible, visiting the field with the secretary, when necessary.

The following officers and members of standing committees were nominated for the ensuing year:

President, DR. W. L. HARRIS, Norfolk.

First Vice-President, DR. T. D. JONES, Richmond.

Second Vice-President, DR. GEO. J. TOMPKINS, Lynchburg.

Third Vice-President, DR. A. M. SHOWALTER, Christiansburg.

Secretary-Treasurer and Business Manager, MISS AGNES V. EDWARDS, Richmond.

Councilors from the State at Large, DR. J. GATES GOODE, Cheriton, and DR. FRANCIS H. SMITH, Abingdon.

Membership Committee, DR. JOS. A. WHITE, chairman; Drs. P. D. Johnston, J. A. Rucker, R. L. Raiford, F. J. Wright, E. W. Dodd, Lewis Holladay, Geo. J. Williams, J. E. Knight and C. E. Conrad.

Judiciary Committee, DR. W. F. DREWRY, Chairman, Drs. Hugh Nelson, Frank Hancock, Bernard Kyle, J. A. Owen, J. L. Early, R. S. Kight, W. L. Peple and A. F. Robertson.

Legislative Committee, DR. H. U. STEPHENSON, Chairman, Drs. J. Bolling Jones, T. S. Henning, J. W. Preston, P. E. Tucker, S. W. Maphis, G. A. Stover, Israel Brown, J. Shelton Horsley and E. G. Williams.

Publication Committee, DR. A. G. BROWN, Chairman, Drs. A. L. Gray, B. R. Tucker, P. W. Howle and E. L. Kendig.

Delegates to American Medical Association, DR.

Southgate Leigh, for two years; Dr. S. S. Gale and Dr. J. Shelton Horsley, Sr., one year each. Alternates, Dr. Hunter McGuire, of Winchester, for two years; Dr. E. G. Williams and Dr. E. C. S. Taliaferro, for one year each.

Virginia State Board of Medical Examiners, 1st District, Dr. J. N. Barney, Fredericksburg; 2nd District, Dr. P. St. L. Moncure, Norfolk; 3rd District, Dr. H. U. Stephenson, Richmond; 4th District, Dr. F. J. Wright, Petersburg; 5th District, Dr. I. Carlington Harrison, Danville; 6th District, Dr. J. W. Preston, Roanoke; 7th District, Dr. P. W. Boyd, Winchester; 8th District, Dr. Lewis Holladay, Orange; 9th District, Dr. F. H. Smith, Abingdon; 10th District, Dr. Robert Glasgow, Lexington.

An invitation was cordially extended by Dr. Brown on behalf of the Norfolk County Medical Society, to hold the next annual meeting in that city, which was duly accepted.

There being no further business to be discussed, the meeting adjourned.

L. T. PRICE, *Clerk*.

This report was now open for discussion.

Dr. Peyser asked why it was that the matter in regard to the deduction of expenses of physicians while attending medical societies and post-graduate courses was laid on the table. Dr. A. L. Gray explained the reason therefor, but stated that something should be done about the repeal of the Harrison Narcotic Tax, which was originally \$1.00.

After discussion Dr. A. F. Robertson moved that the Medical Society of Virginia go on record as protesting against the disallowance of income tax deductions for expenses incident to attendance upon medical conventions and post-graduate courses and that the Society heartily endorse the reduction of the narcotic tax from \$3.00 to \$1.00. Dr. Peyser offered as an amendment, that the last part of Dr. Robertson's resolution in regard to the Harrison Act be adopted. The motion was adopted as amended. Carried.

The report of the Executive Council was approved as amended.

Under unfinished business Dr. M. A. Johnson reported for the Committee on Periodic Health Examinations and offered as a resolution that copies of the pamphlets edited by the A. M. A. be purchased and distributed to the members of the State Society. Dr. Israel Brown objected, on the ground that there were not sufficient funds available for such purpose, and moved that we recommend to each county society that they purchase these pamphlets for distribution, which was seconded and carried.

Under New Business, Dr. W. H. Higgins spoke of the fact that for the past few years our programs have been arranged so that our meetings have closed with an "anti-climax," and offered a motion that this body approve of having a three night and two-day meeting and that the program committee be given power to select a sufficient number of papers to cover that time. Motion was seconded.

Dr. A. L. Gray, a member of the program committee, explained the difficulties encountered by that committee in arranging the program. After a free discussion it was moved that the entire matter be left in the hands of the program committee, in accordance with the motion adopted at the Staunton meeting last year. The motion was seconded and carried.

Dr. M. A. Johnson cited the case of Dr. H. E. Jones, who was expelled from the Roanoke Academy of Medicine one year ago and stated that no action

has yet been taken by the Society. Motion was duly made and seconded that Dr. Jones be expelled from membership in the State Society. Carried.

The following officers and members of standing committees were nominated for the ensuing year:

President, Dr. W. L. Harris, Norfolk.

First Vice-President, Dr. T. D. Jones, Richmond.

Second Vice-President, Dr. Geo. J. Tompkins, Lynchburg.

Third Vice-President, Dr. A. M. Showalter, Christiansburg.

Secretary-Treasurer, Miss Agnes Edwards, Richmond.

Delegates from the State at Large, Dr. J. Gates Goode, Cheriton, and Dr. F. H. Smith, Abingdon.

Delegate from the Fifth District, Dr. I. C. Harrison, Danville.

Delegate from the Seventh District, Dr. Walter Cox, Winchester.

Delegate from the Eighth District, Dr. G. T. Klipstein, Alexandria.

Membership Committee: Dr. J. A. White, chairman, and Drs. Geo. J. Williams, J. E. Knight, C. E. Conrad, P. D. Johnston, R. L. Raiford, J. A. Rucker, F. J. Wright, E. W. Dodd and Lewis Holladay.

Judiciary Committee: Dr. Wm. F. Drewry, chairman, and Drs. Hugh Nelson, Frank Hancock, Bernard Kyle, J. A. Owen, J. L. Early, R. S. Kight, W. L. Peple and A. F. Robertson.

Legislative Committee: Dr. H. U. Stephenson, chairman, and Drs. J. Bolling Jones, T. S. Hening, J. W. Preston, P. E. Tucker, S. W. Maphis, G. A. Stover, Israel Brown, J. Shelton Horsley and E. G. Williams.

Publication Committee: Dr. A. G. Brown, chairman, and Drs. A. L. Gray, B. R. Tucker, P. W. Howle, and E. L. Kendig.

Delegates to the American Medical Association: Dr. Southgate Leigh, for two years, and Drs. S. S. Gale and J. Shelton Horsley, for one year each.

Alternates: Dr. Hunter McGuire, Winchester, for two years, and Drs. E. G. Williams and E. C. S. Taliaferro, for one year.

Virginia State Board of Medical Examiners: 1st District, Dr. J. N. Barney; 2nd District, Dr. P. St. L. Moncure; 3rd District, Dr. H. U. Stephenson; 4th District, Dr. Fletcher J. Wright; 5th District, Dr. I. C. Harrison; 6th District, Dr. J. W. Preston; 7th District, Dr. P. W. Boyd; 8th District, Dr. Lewis Holladay; 9th District, Dr. F. H. Smith; 10th District, Dr. Robert Glasgow.

An invitation was extended by the Norfolk County Medical Society for the Medical Society of Virginia to hold its 1926 session in that city.

This report was presented on Thursday afternoon, October 15th, by special order, before the general meeting of the Society and was approved as read.

Executive Council.

A called meeting of the Executive Council of the Medical Society of Virginia was held on Thursday evening, October 15, 1925. A quorum being found present, nominations were asked for the positions of chairman and clerk of the Council. This resulted in the election of Dr. A. L. Gray, as chairman, and Dr. W. B. Martin, as clerk.

Owing to his connection with the Council on Scientific Assembly of the American Medical Association and the impossibility of his filling this position and that of delegate from our Society, Dr. J. Shelton Horsley requested that a delegate be appointed in

his place. Dr. Hunter McGuire, Winchester, the two-year alternate, was elected delegate for one year from the Medical Society of Virginia to the American Medical Association and Dr. C. C. Coleman, Richmond, was elected two-year alternate *vice* Dr. McGuire.

There being no further business before the Council, it adjourned.

AGNES V. EDWARDS, *Clerk, Pro-Tem.*

The minutes of the called meeting of the Executive Council were read before the general meeting of the Society, at its closing session on October 16, 1925, and it was moved and seconded that they stand approved.

Votes of thanks were extended the city, the local society and ladies, Hermitage Golf Club and Jefferson Hotel for the courtesies extended members while attending the meeting.

The retiring President, Dr. Hunter H. McGuire, Winchester, was elected to honorary membership in the Society.

The following report on the Gorgas Memorial Institute was presented before the general session shortly before adjournment:

Report on Gorgas Memorial Institute.

For the last two years a co-operative, lay and medical movement, having for its object the reduction of unnecessary illness and the prolongation of life, has been functioning in the United States. The organization sponsoring this movement is the Gorgas Memorial Institute, of which President Calvin Coolidge is the honorary head, Vice-President, Charles G. Dawes, a member of its executive committee, and other distinguished lay and medical men, members of its board of directors and state committees.

The name of William Crawford Gorgas is world renowned. He was born in Mobile, October 3, 1854. His father was chief of the Ordnance Department, C. S. A. He graduated from Sewanee with the degree of B. A., and obtained his doctor of medicine degree from Bellevue Medical College. It was his vision and genius that made possible the completion of the Panama Canal after the French had failed three times and the United States was on the verge of giving it up as a feat impossible of achievement. Prior to that time, he had rid Cuba of yellow fever, where for three centuries it had been rampant. To memorialize his achievements in this direction, the Gorgas Memorial will conduct a tropical research program at Panama, where the Republic has donated the site and guaranteed the initial buildings in which to carry on the work.

During the late World War, as Surgeon General of the Army, Gorgas, by the application of proper scientific principles, kept the troops in better physical condition than any corresponding group in civil life, despite the rigors of camp and trench. On these three historical occasions Gorgas demonstrated what could be accomplished through co-operation between the public and scientific medicine. Hence it is that the Gorgas Memorial has incorporated as one of its fundamental principles, the promotion of co-operation between scientific medicine and the public to conserve the present needless waste of human resources.

The average person does not realize that of the 3,000,000 cases of daily illness in the United States, at least twenty-five per cent is preventable and that approximately 25,000,000 youths and adults in the United States are below par physically and in need of immediate medical aid.

Through the medium of the Gorgas Memorial the members of the medical profession have united with laymen and women of vision to "health education" of the people. The problem heretofore has been to make this knowledge available to the average individual in such a form that he will understand it, and to make its presentation sufficiently attractive to command his attention. Placing abstruse scientific facts in untrained hands is not practical. The knowledge must be directed and conveyed in such a way that it will accomplish the maximum amount of good. No one can instruct in matters of health so well as the physician who has spent the best years of his life acquiring the latest scientific knowledge obtainable in the care of the bodily machine.

Acting on the theory that the public if properly informed will co-operate with the scientific medical profession, the directors of the Gorgas Memorial agreed that an important phase of its activities should consist of a campaign of health education, directed to the public through the medium of the daily newspapers, general magazines, radio, moving pictures, and lectures before clubs and other community gatherings.

When the program had been outlined, the next step was the securing of funds to finance it. It was decided to go directly to groups of representative men and women, doctors and laymen, in each state with the plan, asking each one to contribute not less than \$100 to a fund to get the work under way. One of the directors of the Memorial advanced a sufficient amount to cover the cost of administration for the first month, and two field workers were sent out from headquarters to call upon selected groups of medical men, outline the program to them and enlist their financial and moral support.

The organization plan provides for not less than 100 committee members to each 1,000,000 population. At first blush, the idea of asking each committee member to subscribe \$100 when he accepted appointment to the committee was rather a shock, but when he realized that it was his pocketbook investment in the project that would retain his interest in it and aid in its development, he enthusiastically approved the plan. The purpose of this method of organization was two-fold: First, to instill in each committee member a real live interest in the movement of which he was to be a participating life member; and second, to obtain at once a working fund to get the campaign under way without delay.

As a result of this effort, nearly two thousand representative doctors and laymen are now organized throughout the country, each state having its nucleus of progressive individuals heartily co-operating in bringing to a successful issue this national movement to make life healthier and longer. To illustrate the universal interest exhibited by the profession throughout the United States in the project, our committee membership shows 349 members organized to date in New York, 147 in Michigan, 107 in California, and other states in proportion. Plans are now under way in certain states where the medical group has been completed to inaugurate a campaign for financial support among the laity. The directors of the memorial feel that it is essential to have the medical members completely organized before going to the public with the plan in order that the representative doctors in each community may be identified with it—giving it the stamp of authority that will distinguish it from the many sporadic organizations that are here today and gone tomorrow. The quota set for the state of Virginia

is 230 doctors and laymen. The membership at present numbers 22. To complete the quota therefore, we want to secure as soon as possible 180 doctors and 50 laymen to serve on the Virginia Governing Committee.

Payment of the \$100 subscription may be distributed over a period of five years if desired. In this way the financial burden is not onerous.

To visualize what may be expected when the Gorgas program is functioning 100 per cent, the following mention may be made of the expansion of the health educational program inaugurated in a modest way six months ago:

In February of this year, a health article, written by a well known doctor in popular newspaper style, was sent to 1,000 newspapers throughout the United States, under the auspices of the Gorgas Memorial. Soon clippings from the papers that published this release began to pour in, exhibiting a national interest in "The Gorgas Idea." Gradually the number of news releases was increased, and a series of radio talks broadcasted, until now the Gorgas Memorial is reaching millions of people with its message of "better health and longer life." It is estimated that the Gorgas health talks now reach at least 10,000,000 readers and as the program is being steadily extended it is reasonable to expect that by the first of the year this number will be doubled.

"Good health" appeals to everyone. It is of fundamental importance to young and old, rich and poor. Charlatans and irregulars recognize this interest on the part of an uninformed laity and have preyed on its lack of knowledge of scientific facts. The Gorgas Memorial has demonstrated that authentic health information is gratefully received by an interested public.

One point that is stressed in all the releases distributed from headquarters, and which must be impressed upon every man, woman and child in the land, is the importance of the periodic health examinations by the family doctor. No one would think of starting on a long motor trip without first examining his automobile and yet we go through life disregarding health danger signals, never having a medical expert go over the most intricate and valuable machine we can ever hope to possess—whose parts when once destroyed are irreplaceable—until some emergency arises that obliges us to call in the family doctor. Then, many times, too late, he finds that our motors have not been functioning properly, that faulty habits of diet or living have caused a general breakdown that might easily have been prevented if we used common sense in the care of our health. Heart disease, Bright's disease, diabetes, and many other diseases of middle life are the so-called "habit or degenerative disease," which could be controlled or entirely eradicated if discovered in early life.

One of the big insurance companies recently reported that in a group of its policyholders, the members of which had been subjected to frequent medical examination, the span of life had been increased eight and one-half years within the last twelve years, as against an increase of five years in the same period among those who did not have health examinations. What might not be expected, if the annual health audit became a national habit?

Through its educational program, the Gorgas Memorial hopes to develop such close co-operation between the public and scientific medicine that the vast storehouse of knowledge, ready and waiting, to be drawn upon, may be utilized to the best possi-

ble advantage by doctor and patient. It will show people how co-operation between the doctor and the individual will improve personal health standards and lengthen the span of life.

It will impress upon the laity the fact that scientific medicine rather than the various cults and isms should be regarded as the authority in all matters pertaining to health. It is one foundation that places the direction of medical affairs in the hands of curative medicine where it properly belongs.

To develop the entire Gorgas program on a comprehensive scale, it is estimated that the income from a \$5,000,000 Endowment Fund will be required, the principal of which will be invested in trust securities and the income only used to maintain the work in perpetuity. Through the generosity of the State Governing Committee members, who have been supporting the project up to the present, a small start has been made. The reception accorded our initial efforts has been so encouraging that we are anxious to extend them as rapidly as possible. To do this we must have the whole hearted support of the medical profession. We are appealing to you members of the Medical Society of Virginia and your guests to help in this big program. It is your organization and your financial and moral support is essential to its success.

Following this business, the reading of the scientific papers was completed.

The fifty-sixth annual meeting of the Medical Society of Virginia then adjourned to meet in Norfolk, *sine die*.

AGNES V. EDWARDS,
Secretary-Treasurer.

Woman's Auxiliary of the Medical Society of Virginia.

October, 1925.

The first session of the Auxiliary was called to order Wednesday morning, October 14th, 1925, at ten o'clock, in the Flemish Room of the Jefferson Hotel. In the absence of the president, Mrs. Hunter H. McGuire, of Winchester, who was prevented from being present by a painful accident, Mrs. J. Allison Hodges, of Richmond, first vice-president, presided, opening the meeting with the Lord's Prayer, in unison. Names and home addresses of those present showed a very satisfactory attendance from the State at large. Mrs. Frank Upshur, president of the Richmond Auxiliary, welcomed the visitors, and Mrs. J. W. Preston, of Roanoke, responded, after which the minutes of the Staunton meeting were read and approved.

Mrs. Southgate Leigh, of Norfolk, reported that the per capita dues of the local auxiliaries to the National Auxiliary were made 25 cents instead of 10 cents, at the meeting in Atlantic City in May, and about twenty states organized. Report of the Norfolk auxiliary, read by Mrs. E. F. Truitt, showed a number of activities, and good work done, one important work being the placing of the Hygeia magazine in the schools, Y. M. C. A., Y. W. C. A., Boy Scout headquarters, etc.

Lynchburg reported by Mrs. Tompkins, finds the work of the Auxiliary overlapped by other organizations, but has had pleasant social meetings and supplied the hospital with bulbs and flowers.

Roanoke reported resting on their laurels since the meeting with them of the State Auxiliary, but are ready for any emergency, and pay their dues.

Mrs. E. G. Hill reported for South Richmond Aux-

iliary, 15 members, seven meetings and ready to help in any way.

Mrs. Frank Upshur reported 40 paid members of the Richmond Auxiliary, and a number of others who have recently joined so many organizations in the city, covering all branches of work, that the work of the auxiliary has been confined to the Legislative Council.

Mrs. Vaden, of Buena Vista, reported efforts to organize Rockbridge County unsuccessful so far, but each one ready to do her part, few physicians and great distance the cause.

Dr. Lawrence Price, of Richmond, was introduced at this time and spoke of the Auxiliary working with the Medical Society in their efforts to defeat the Chiropractic Bill, urging each one to see her representative in the State Legislature and try to get a promise to vote against same. He also spoke of the time it takes a physician to prepare him or herself for the profession and the few weeks or months spent in study of chiropractic, and the inadequate equipped study halls and laboratories, even in their best schools, requiring three years of six months each, to receive their diploma.

Mrs. Preston, of Roanoke, spoke of the importance of instructing the House of Delegates as to what we want, and of educating the representatives as to the various cults and fads, and of opposing same.

Dr. Southgate Leigh, of Norfolk, was next introduced, and followed up the remarks of Dr. Price by talking of the well organized work of the National Chiropractic Association, and the necessity of active co-operation by the Auxiliary and Medical Society, in order to defeat the bill in the legislature. He spoke of workers being sent to Norfolk and being paid by the National Chiropractic Organization to do all possible to defeat the two Norfolk physicians, members of the legislature, who had voted against the bill at the last session, and of their success in the same. Also of the fund on hand to furnish lawyers for any Chiropractor who might be brought into court and payment to such of \$100 a month during time of confinement, should said Chiropractor receive a jail sentence. Work of this nature is carried on in all sections of the state and country.

Dr. Mary Baughman spoke next along the same lines, also emphasizing the importance of the passage of the Parentage Bill.

The attendance at the night session of the Medical Society, a lecture at the Woman's Club, or a visit to the various "movies," was left to the choice of the individual members for Wednesday evening.

After announcement of the Thursday morning program, completing unfinished business, and the election of a president (Mrs. McGuire being unable to serve her unexpired term), the members adjourned for a sight-seeing trip to points of interest about the city, and a luncheon at the Pine Camp Hospital, at one o'clock.

Respectfully submitted,

M. EDMONIA GARCIN,
(Mrs. RAMON D. GARCIN),
Secretary Pro. Tem.

October 15, 1925

The Thursday morning session of the Woman's Auxiliary of the Medical Society of Virginia was called to order in the Flemish Room of the Jefferson Hotel, at ten o'clock, Mrs. J. Allison Hodges, acting president, in the chair. After prayer, minutes of previous session were read and approved. Articles on aims, organization, and membership, from the

constitution of the Virginia auxiliary, were read. Roll call showed several present who were not at Wednesday's meeting.

At this point, Mrs. George T. King, Treasurer, and one of the charter members of the Board of Managers of Sheltering Arms Hospital, Richmond, was introduced and gave a most interesting talk on the work of the Hospital as regards the splendid work being done for crippled adults. She prefaced her remarks by a short sketch of the hospital, the large number of patients cared for during the past year, (over 1,000), without any cost at all to the patient, and of this number over 100 were cripples, some few children, but the large majority over fifteen, some few over forty, and some wonderful cures. One of the patients was a woman past middle age, who had never walked, was treated for about eight or nine months, and left the hospital wearing shoes and walking. Several other equally as wonderful cases were reported. These patients are sent from the various clinics held throughout the State. Mrs. King closed her talk by saying that the expenses of the hospital were between thirty-five and forty thousand dollars, and the known income only about fourteen thousand, the rest coming through kind and generous friends. As patients are received from all parts of Virginia, a hint to the wise is sufficient.

Dr. W. Brownley Foster, Chief Health Officer of Richmond, was the next speaker. His subject was Narcotics. He spoke of their terrible effects and increasing use of morphine, opium, cocaine, etc., and the various means of smuggling it into the country and the large cities, and how powerless we seem at present to prevent it.

A call for the cities organized in the work of the auxiliary showed Norfolk, Lynchburg, Staunton, Roanoke, Richmond, and South Richmond organized. Others promised to go home and organize if possible; if not, to try to do the work of the auxiliary through other organizations. Special emphasis was laid on our efforts towards securing a nurse and full-time health officer for every county in the State; educational lectures along health lines, etc. A number of the women present not having a local auxiliary paid their dues to the State organization, becoming "members at large."

Each auxiliary fixes its own dues, but of that amount 25 cents goes to the National and 10 cents to the State auxiliaries. The officers are elected for two years, but Mrs. Hunter McGuire having sent her resignation, a president had to be elected to fill her unexpired term of one year. Mrs. J. W. Preston, of Roanoke, proposed Mrs. Southgate Leigh, of Norfolk, for president, and she was unanimously elected.

Mrs. R. L. Raiford, of Sedley, moved that a committee be appointed to draw up resolutions of appreciation for the enjoyable time, given the visiting members during their stay in Richmond. Mrs. Raiford, Mrs. W. B. Porter, of Roanoke, and Mrs. M. T. Vaden, of Buena Vista, were appointed.

Mrs. Leigh, the newly appointed president, made a short talk, asking for the co-operation of all the members in the work outlined by the constitution, and the necessity for immediate and concerted action along the lines of our work, especially in connection with the several bills to come before the next legislature.

The roll call showed sixty members having registered, but a number were in attendance whose names were not secured, they either coming in late or leaving before their names were listed.

Mrs. Henry T. Miller, of Washington, D. C., treasurer, was unable to attend on account of sickness, and wrote expressing her regrets and hoping for a good meeting. A telegram was read from Mrs. Seale Harris, president of the Auxiliary of the A. M. A., of Birmingham, Ala., expressing her regrets at not being able to meet with us, and wishing much success in the efforts being put forth.

No other business, the meeting adjourned for luncheon at the Country Club.

Respectfully submitted,

M. EDMONIA GARCIN,
(MRS. RAMON D. GARCIN),
Acting Secretary.

RESOLUTION ADOPTED BY WOMAN'S AUXILIARY, M. S. V.

Whereas, The Medical Society of Virginia has steadily encouraged the presence of the wives and daughters of members at their conventions, and

Whereas, The said wives and daughters of members are now attending in larger numbers than ever before, due to their definite work in the Woman's Auxiliary, and,

Whereas, The fifty-sixth annual meeting of the Medical Society of Virginia is more largely attended by ladies than any previous meeting;

Resolved, That the ladies here assembled wish to express their sincere thanks and appreciation for all the lovely entertainment that has been given them, and wish especially to say they enjoyed the luncheons at Pine Camp and at the Country Club, also the beautiful musical program at the Country Club, by Mrs. Mae Righter, soprano soloist, and Mrs. Henry Stein, violinist, the theatre party and drives, and that the ball will be long remembered with the courtesies of their Richmond hosts and hostesses.

PAULINE F. ADAMS, *Chairman.*
MRS. M. T. VADEN,
MRS. R. L. RAIFORD.

Mrs. Porter had left and Mrs. Adams was appointed in her place.

LADIES IN ATTENDANCE UPON MEETING.

Mrs. M. A. Johnson, Jr., Roanoke.
Mrs. Geo. J. Tompkins, Lynchburg.
Mrs. T. M. Howell, Lynchburg.
Mrs. W. B. Porter, Roanoke.
Mrs. T. E. Rucker, Lynchburg.
Mrs. J. F. Armentrout, Roanoke.
Mrs. S. B. Moon, Richmond.
Mrs. J. S. Horsley, Richmond.
Mrs. A. F. Wood, Parksley.
Mrs. J. S. Horsley, Jr., Richmond.
Mrs. A. W. Showalter, Cambria.
Mrs. C. W. Putney, Staunton.
Mrs. J. W. Henson, Richmond.
Mrs. Frank Upshur, Richmond.
Mrs. D. H. Mason, Ridgeway.
Mrs. A. I. Dodson, Richmond.
Mrs. L. F. James, Richmond.
Mrs. M. P. Rucker, Richmond.
Mrs. C. B. Nuckolls, Hillsville.
Mrs. W. Rush Gardner, Hillsville.
Mrs. J. R. Blair, Richmond.
Mrs. J. F. Jones, Richmond.
Mrs. C. E. Llewellyn, Richmond.
Mrs. E. G. Hill, Richmond.
Mrs. E. C. Eggleston, Richmond.
Mrs. Emory Hill, Richmond.
Mrs. T. D. Jones, Richmond.
Mrs. N. T. Ennett, Richmond.

Mrs. T. L. Driscoll, Richmond.
 Mrs. J. W. Turman, Richmond.
 Mrs. F. M. Hodges, Richmond.
 Mrs. J. K. Hall, Richmond.
 Mrs. J. C. Giles, Danville.
 Mrs. S. B. Nickels, Clinchport.
 Mrs. William Meyer, Herndon.
 Mrs. W. R. Williams, Richlands.
 Mrs. Southgate Leigh, Norfolk.
 Mrs. E. F. Truitt, Norfolk.
 Mrs. J. H. Culpepper, Norfolk.
 Mrs. M. T. McCulloch, Troutville.
 Mrs. R. L. Raiford, Sedley.
 Mrs. Percy Harris, Scottsville.
 Mrs. F. N. Mallory, Lawrenceville.
 Mrs. J. W. Preston, Roanoke.
 Mrs. M. T. Vaden, Buena Vista.
 Mrs. W. T. Vaughan, Richmond.
 Mrs. J. A. Hodges, Richmond.
 Mrs. R. D. Garcin, Richmond.
 Mrs. W. H. Cra'g, Richmond.
 Mrs. J. M. Shackelford, Martinsville.
 Mrs. J. W. Bolen, Galax.
 Mrs. T. H. Worrell, Mt. Airy, N. C.
 Mrs. A. W. Lewis, Bruington.
 Mrs. W. Brownley Foster, Richmond.
 Mrs. Manfred Call, Richmond.
 Mrs. T. M. Taylor, State Farm.
 Mrs. Thomas Wheeldon, Richmond.
 Mrs. Alfred Gray, Richmond.
 Mrs. Wright Clarkson, Petersburg.
 Mrs. H. J. Siusher, New Market, Md.

The Nelson County Medical Society

Held its first meeting for some time at Lovingson, September 28th, and elected the following officers for the ensuing year: President, Dr. D. C. Wills, Arrington; secretary-treasurer, Dr. J. F. Thaxton (re-elected), Tye River. Dr. Thaxton was elected delegate to the State Society meeting and Dr. B. F. Randolph, Arrington, his alternate.

Several matters of local interest were brought up for discussion and a committee was appointed to appear before the Board of Supervisors at the next meeting to ask for the appointment of some special officers to patrol the state highways for the purpose of checking so much reckless driving, several serious accidents having happened in the county lately.

The next meeting of the Society will be held at Lovingson, Court Day, November 23rd.

J. F. THAXTON, *Secretary*.

The Prince Edward and Cumberland Medical Society

Held its regular meeting on October 23rd, at which time the following officers were elected for the ensuing year: President, Dr. Carter Weisiger, Cumberland; vice-president, Dr. Thomas G. Hardy, Farmville; secretary-treasurer, Dr. Susan Wilson Field, Farmville.

The Roanoke Academy of Medicine,

At its meeting on October 5, elected the following officers for the year 1925-1926: President, Dr. A. P. Jones; vice-presidents, Drs. M. A. Johnson, Jr., and Hugh Hagan; secretary-treasurer, Dr. Paul Jones, all of Roanoke.

The Executive Committee is composed of Drs. W. R. Whitman, J. B. Nicholls, Alvah Stone, W. P. Jackson, and J. F. Armentrout; Judiciary Committee of Drs. J. T. McKinney, Geo. B. Lawson, E. L. Lawrence, Geo. Hurt and A. A. Cannaday; Legislative Committee, Dr. J. W. Preston. Several new members were elected at this meeting and names of several applicants for membership were reported.

The Truth About Medicine

In addition to the articles enumerated in our letter of August 29th, the following have been accepted:

Gilliland Laboratories
 Schick Test
 Typhoid-Paratyphoid Bacterial Vaccine Immunizing
 Laboratory Products Co.
 Protein S. M. A. (Acidulated)
 Eli Lilly & Co.
 Antistreptococcic Serum
 Normal Horse Serum
 Pertussis Vaccine
 Pneumococcus Vaccine Prophylactic
 Staphylococcus Aureus Vaccine
 Staphylococcus Vaccine
 Streptococcus Vaccine
 Vaccine Virus
 Mallinckrodt Chemical Works
 Bromeikon
 Bromeikon 5 Gm. Ampules
 Merrell-Soule Company
 Vi-Mal-Dex (Orange)
 H. K. Mulford Co.
 Pertussis Bacterin—Mulford
 Typho Bacterin
 Typho-Serobacterin
 Typho-Serobacterin—Mulford, Mixed.
 National Aniline & Chemical Co.
 Tetraiodophthalein Sodium—"National"
 Tetraiodophthalein Sodium—"National," Vials 3½ Gm.
 Parke, Davis & Co.
 Corpora Lutea Desiccated—P. D. & Co.
 Capsules Corpora Lutea Desiccated—P. D. & Co., 2 grains
 Capsules Corpora Lutea Desiccated—P. D. & Co., 5 grains
 Tablets Corpora Lutea Desiccated—P. D. & Co., 2 grains
 Tablets Corpora Lutea Desiccated—P. D. & Co., 5 grains
 Swan-Myers Co.
 Sterile Ampules of Mercury Oxycyanide, 0.008 Gm.
 Sterile Ampules of Mercury Oxycyanide, 0.01 Gm.

Sterile Ampules of Mercury Oxycyanide, 0.016 Gm.

Nonproprietary Articles

Tetrabromphthalein Sodium (formerly called Tetrabromphenolphthalein Sodium)
Tetraiodophthalein Sodium

NEW AND NON-OFFICIAL REMEDIES

Protein Extracts—Mulford.—Liquids obtained by extracting the protein of substances believed to be the cause of specific sensitization. For a discussion of the actions and uses, see Allergic Protein Preparations (New and Non-official Remedies, 1925, p. 278). Protein Extracts—Mulford, are used both for diagnosis and treatment. They are marketed in 5 c.c. vials. The following preparations have been accepted: Almond Protein Extract—Mulford, Apple Protein Extract—Mulford, Asparagus Protein Extract—Mulford, Banana Protein Extract—Mulford, Barley Protein Extract—Mulford, Bean (Lima) Protein Extract—Mulford, Bean (Navy) Protein Extract—Mulford, Bean (String) Protein Extract—Mulford, Beef Protein Extract—Mulford, Beet Protein Extract—Mulford, Buckwheat Protein Extract—Mulford, Cabbage Protein Extract—Mulford, Cantaloupe Protein Extract—Mulford, Carrot Protein Extract—Mulford, Cat Hair Protein Extract—Mulford, Cauliflower Protein Extract—Mulford, Celery Protein Extract—Mulford, Chicken Protein Extract—Mulford, Chicken Feather Protein Extract—Mulford, Cattle Dander Protein Extract—Mulford, Clam Protein Extract—Mulford, Cocoa Protein Extract—Mulford, Codfish Protein Extract—Mulford, Coffee Protein Extract—Mulford, Corn Protein Extract—Mulford, Cucumber Protein Extract—Mulford, Dog Hair Protein Extract—Mulford, Eggplant Protein Extract—Mulford, Egg White Protein Extract—Mulford, Egg Yolk Protein Extract—Mulford, Flaxseed Protein Extract—Mulford, Goose Feather Protein Extract—Mulford, Guinea-Pig Hair Protein Extract—Mulford, Horse Dander Protein Extract—Mulford, Horse Serum Protein Extract—Mulford, Kapok Protein Extract—Mulford, Lamb Protein Extract—Mulford, Lettuce Protein Extract—Mulford, Lobster Protein Extract—Mulford, Mackerel Protein Extract—Mulford, Milk Protein Extract—Mulford, Mushroom Protein Extract—Mulford, Oat Protein Extract—Mulford, Onion Protein Extract—Mulford, Orange Protein Extract—Mulford, Orris Root Protein Extract—Mulford, Oyster Protein Extract—Mulford, Pea Protein Extract—Mulford, Peanut Protein Extract—Mulford, Pepper (Black) Protein Extract—Mulford, Pork Protein Extract—Mulford, Potato Protein Extract—Mulford—Rabbit Hair Protein Extract—Mulford, Rice Protein Extract—Mulford, Rice Powder (Polish) Protein Extract—Mulford, Rye Protein Extract—Mulford, Salmon Protein Extract—Mulford, Spinach Protein Extract—Mulford, Squash Protein Extract—Mulford, Strawberry Protein Extract—Mulford, Sheep's Wool Protein Extract—Mulford, Sweet Potato Protein Extract—Mulford, Tea Protein Extract—Mulford, Tomato Protein Extract—Mulford, Veal Protein Extract—Mulford, Walnut Protein Extract—Mulford, Wheat Protein Extract—Mulford. H. K. Mulford Co., Philadelphia.

Insulin—Squibb 10 Units, 10 c.c.—Each c.c. contains 10 units of insulin—Squibb (New and Non-official Remedies, 1925, p. 174). E. R. Squibb & Sons, New York.

Insulin—Squibb 20 Units, 10 c.c.—Each c.c. contains 20 units of insulin—Squibb (New and Non-

official Remedies, 1925, p. 174). E. R. Squibb & Sons, New York.

Insulin—Squibb 40 Units, 10 c.c.—Each c.c. contains 40 units of insulin—Squibb (New and Non-official Remedies, 1925, p. 174). E. R. Squibb & Sons, New York.

Insulin—Squibb 80 Units, 10 c.c.—Each c.c. contains 80 units of insulin—Squibb (New and Non-official Remedies, 1925, p. 174). E. R. Squibb & Sons, New York.

Neo-Silvol Ointment 5 Per Cent.—An ointment composed of neo-silvol (New and Non-official Remedies, 1925, p. 379), 5 per cent in a base composed of glycerin, benzoated lard, hydrous wool fat and petrolatum. Parke, Davis & Co., Detroit.

Mercurosal Solution.—Each c.c. contains mercurosal (New and Non-official Remedies, 1925, p. 234), 0.025 Gm. (5/13 grain), in distilled water containing 0.1 per cent of sodium citrate. Parke, Davis & Co., Detroit. (Jour. A. M. A., Sept. 5, 1925, p. 745).

Protein Dried—Mulford.—Powders representing the proteins of substances believed to be the cause of specific sensitization. For a discussion of the actions and uses, see Allergic Protein Preparations (New and Non-official Remedies, 1925, p. 278). Proteins dried—Mulford are intended for diagnosis only. One milligram of the dried protein is rubbed into an abrasion of the skin to which has been applied a drop of physiological solution of sodium chloride or of tenth-normal sodium hydroxide solution. The appearance of an urticarial wheal indicates sensitiveness to the particular protein used. They are marketed in packages of one capillary tube containing a needle and sufficient protein for one test; in packages of six capillary tubes; and in vials containing 50 Mg. of the protein. The following proteins dried—Mulford, have been accepted: Almond Protein Dried—Mulford, apple Protein Dried—Mulford, Asparagus Protein Dried—Mulford, Banana Protein Dried—Mulford, Barley Protein Dried—Mulford, Bean (Lima) Protein Dried—Mulford, Bean (Navy) Protein Dried—Mulford, Bean (String) Protein Dried—Mulford, Beef Protein Dried—Mulford, Beet Protein Dried—Mulford, Buckwheat Protein Dried—Mulford, Cabbage Protein Dried—Mulford, Cantaloupe Protein Dried—Mulford, Carrot Protein Dried—Mulford, Cat Hair Protein Dried—Mulford, Cattle Dander Protein Dried—Mulford, Cauliflower Protein Dried—Mulford, Celery Protein Dried—Mulford, Chicken Protein Dried—Mulford, Chicken Feather Protein Dried—Mulford, Clam Protein Dried—Mulford, Cocoa Protein Dried—Mulford, Codfish Protein Dried—Mulford, Coffee Protein Dried—Mulford, Coli (Communis) Bacillus Protein Dried—Mulford, Corn Protein Dried—Mulford, Cucumber Protein Dried—Mulford, Diphtheroid (Polyvalent) Bacillus Protein Dried—Mulford, Dog Hair Protein Dried—Mulford, Dysentery Bacillus (Polyvalent) Protein Dried—Mulford, Eggplant Protein Dried—Mulford, Egg White Protein Dried—Mulford, Egg Yolk Protein Dried—Mulford, Flaxseed Protein Dried—Mulford, Friedlander Bacillus Protein Dried—Mulford, Goose Feather Protein Dried—Mulford, Gonococcus Bacillus (Polyvalent) Protein Dried—Mulford, Guinea-Pig Hair Protein Dried—Mulford, Horse Dander Protein Dried—Mulford, Horse Serum Protein Dried—Mulford, Influenza Bacillus Protein Dried—Mulford, Kapok Protein Dried—Mulford, Lamb Protein Dried—Mulford, Lettuce Protein Dried—Mulford, Lobster Protein Dried—Mulford, Mackerel Protein Dried—Mulford, Meningococcus Bacillus (Polyvalent) Protein Dried—Mulford, Micrococcus Catarrhalis Ba-

cillus Protein Dried—Mulford, Milk Protein Dried—Mulford, Mushroom Protein Dried—Mulford, Oat Protein Dried—Mulford, Onion Protein Dried—Mulford, Orange Protein Dried—Mulford, Orris Root Protein Dried—Mulford, Oyster Protein Dried—Mulford, Paratyphosus Bacillus A Protein Dried—Mulford, Paratyphosus Bacillus B Protein Dried—Mulford, Pertussis Bacillus (Polyvalent) Protein Dried—Mulford, Pea Protein Dried—Mulford, Peanut Protein Dried—Mulford, Pepper (Black) Protein Dried—Mulford, Pneumococcus Bacillus (Polyvalent) Protein Dried—Mulford, Pork Protein Dried—Mulford, Potato Protein Dried—Mulford, Rabbit Hair Protein Dried—Mulford, Rice Protein Dried—Mulford, Rice Powder (Polish) Protein Dried—Mulford, Rye Protein Dried—Mulford, Salmon Protein Dried—Mulford, Spinach Protein Dried—Mulford, Squash Protein Dried—Mulford, Strawberry Protein Dried—Mulford, Sheep's Wool Protein Dried—Mulford, Staphylococcus Bacillus (Albus and Aureus) Protein Dried—Mulford, Streptococcus Bacillus (Polyvalent) Protein Dried—Mulford, Sweet Potato Protein Dried—Mulford, Tea Protein Dried—Mulford, Tomato Protein Dried—Mulford, Tobacco Protein Dried—Mulford, Tubercle Bacillus (Human) Protein Dried—Mulford, Tubercle Bacillus (Bovine) Protein Dried—Mulford, Typhosus Bacillus Protein Dried—Mulford, Veal Protein Dried—Mulford, Walnut Protein Dried—Mulford, Wheat Protein Dried—Mulford. H. K. Mulford Co., Philadelphia.

Radon—Standard Chemical Co.—A brand of radon—N. N. R. For a discussion of radon, its actions and uses, see *New and Non-official Remedies*, 1925, p. 313. Radon—Standard Chemical Co., is supplied in the form of "implants" (minute glass tubes suitable for embedding in tumors), and in the form of larger tubes. Radium Chemical Co., Pittsburgh. (*Jour. A. M. A.*, Sept. 12, 1925 p. 825).

Iodipin 40 Per Cent.—An iodine addition product of sesame oil, containing from 39 to 41 per cent of iodine in organic combination. Iodipin 40 per cent is used as a contrast medium in myelography and pyelography for detecting urethral strictures and in the spinal column for the location of tumors. It is supplied in bulk and in ampules containing, respectively, 1 c.c. and 2 c.c. Merck & Co., New York.

Pertussis Bacterin—Mulford (New and Non-official Remedies, 1925, p. 354).—This is also marketed in packages of one 5 c.c. vial containing 2,000 million killed pertussis bacilli per c.c.; of one 20 c.c. vial containing 2,000 million killed pertussis bacilli per c.c.; and of four vials containing, respectively, 250, 500, 1,000 and 2,000 killed pertussis bacilli per c.c. H. K. Mulford Co., Philadelphia.

Typho-Serobacterin (New and Non-official Remedies, 1925, p. 368).—This is also marketed in packages of three syringes containing, respectively, 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli; of three 1 c.c. vials, containing, respectively, 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli; and in thirty 1 c.c. vials, constituting ten tests of three doses. H. K. Mulford Co., Philadelphia.

Typho-Serobacterin—Mulford Mixed (New and Non-official Remedies, 1925, p. 369).—This is also marketed in packages of three hypo-units containing consecutive doses of a mixture of killed sensitized typhoid bacilli, killed sensitized paratyphoid bacilli A. and killed sensitized paratyphoid bacilli B; of thirty 1 c.c. vials, being ten tests of three doses of a mixture of the three bacilli. H. K. Mulford Co., Philadelphia. (*Jour. A. M. A.*, Sept. 19, 1925, p. 901).

Theocalcoine.—A double salt or mixture of calcium theobromine and calcium salicylate. It contains not less than 44 per cent of theobromine. Theocalcoine acts like theobromine, but is claimed to be less likely to produce gastric irritation than the official theobromine sodio-salicylate. It is supplied in bulk and in 7½ grain tablets. E. Bilhuber, New York.

Vi-Mal-Dex (Orange).—A mixture containing, approximately, maltose, 28 per cent; dextrose, 10 per cent; dextrin, 48 per cent; orange juice sugars, 9 per cent; citric acid, 1 per cent; ash, 1 per cent; moisture, 3 per cent. One hundred Gm. contains the equivalent of 93.5 c.c. of fresh orange juice. Vi-Mal-Dex (Orange) is proposed as a carbohydrate food for use in the feeding of infants. In addition to the carbohydrates, dextrose, maltose and dextrin, it presents the antiscorbutic properties of orange juice. For use, Vi-Mal-Dex (orange) is mixed with water or milk. Merrell-Soule Co., Syracuse, New York.

Sterile Ampules of Mercury Oxycyanide, 0.008 Gm.—Each ampule contains 5 c.c. of solution, representing 0.008 Gm. (⅓ grain) of mercuric oxycyanide—N. N. R. (New and Non-official Remedies, 1925, p. 228). Swan-Myers Co., Indianapolis.

Sterile Ampule of Mercury Oxycyanide, 0.01 Gm.—Each ampule contains 5 c.c. of solution, representing 0.01 Gm. (1/6 grain) of mercuric oxycyanide—N. N. R. (New and Non-official Remedies, 1925, p. 228). Swan-Myers Co., Indianapolis.

Sterile Ampules Mercury Oxycyanide, 0.016 Gm.—Each ampule contains 3 c.c. of solution, representing 0.016 Gm. (¼ grain) of mercuric oxycyanide—N. N. R. (New and Non-official Remedies, 1925, p. 228). Swan-Myers Co., Indianapolis.

Tetraiodophthalein Sodium.—Tetraiodophenolphthalein sodium. The sodium salt of a dibasic dye, tetraiodophenolphthalein. Tetraiodophthalein sodium contains not less than 53 per cent. of iodine. It is used for the Roentgenologic examination of the gall-bladder. Following the intravenous injection or, if decomposition is avoided, the oral administration, the substance appears in the normal gall-bladder in sufficient concentration to cast a shadow to the Roentgen ray. The use of tetraiodophthalein sodium is in the experimental stage and workers are cautioned as to the selection of types of cases in which it is indicated and its possible toxicity in large doses.

Iodeikon.—A brand of tetraiodophthalein sodium.—N. N. R. It is supplied in bulk and in 3.5 Gm. ampules. Mallinckrodt Chemical Works, St. Louis.

Tetraiodophthalein Sodium—"National."—A brand of tetraiodophthalein sodium—N. N. R. It is supplied in bulk and in 3.5 Gm. vials. National Aniline and Chemical Co., New York. (*Jour. A. M. A.*, Sept. 26, 1925, p. 975).

PROPAGANDA FOR REFORM.

Spleen and Red Bone Marrow—The Council on Pharmacy and Chemistry published a preliminary report of recent work with a mixture of spleen and red bone marrow. At one time desiccated spleen and a preparation of red bone marrow were described in *New and Non-official Remedies*. Later they were omitted because clinical experience with them had been disappointing. Recently, C. D. Leake and his collaborators have studied the effects of spleen and red bone marrow given separately and in combination. From their studies, these investigators conclude that a combination of spleen and red bone marrow is much more efficient than either

spleen or red bone marrow alone. They conclude also that the administration of such a mixture has a beneficial effect on simple anemia, but is without effect on pernicious anemia. While the results do not permit a definite judgment, the Council believes that they are sufficiently favorable to warrant a thorough investigation of the effects produced by this combination on cases of simple anemia. The Council reports that Lehn and Fink, Inc., market Spleen and Bone Marrow Desiccated of declared composition, and that the Wilson Laboratories market a preparation under the proprietary name "Spleenmarrow," stated to be an extract of spleen and red bone marrow, but the method of preparation of which is not disclosed. (Jour. A. M. A., Sept. 5, 1925, p. 744.)

The Depressor Substance in Hepatic Tissue.—Attempts to lower the blood pressure through the administration of liver extracts have been reported. Obviously, the use of crude tissue extracts, however potent they may be, is attended with great danger. Protein effects, including a variety of anaphylactic manifestations, are always threatening; furthermore, the tissues yield a diversity of potent products that should not be injected indiscriminately. It is gratifying to learn, therefore, that experiments indicate the constituent of the liver extract which affects blood pressure to be non-protein in character. According to the latest reports, the principle depresses the arterial tension and maintains it at subnormal levels for a long time. One cannot avoid the belief that progress in the possible control of clinical hypertension is imminent. (Jour. A. M. A., Sept. 5, 1925, p. 750.)

What Do Physicians Prescribe?—The impression seems to be prevalent, although without any definite evidence, that physicians are again tending to the prescribing of ready made formulas, and that the art of pharmacy is becoming less and less a necessity to modern medical practice. A survey made under the Commonwealth Fund is, therefore, interesting. One thousand prescriptions (one hundred from a state), were examined: 51.9 per cent contained only official ingredients; 29 per cent contained both official and non-official ingredients; 19.1 per cent contained only non-official ingredients. The study was extended, and 17,577 prescriptions were found to contain 40,454 ingredients of which but 10 per cent were proprietary. The study also indicated that the filling of prescriptions is not, as has been believed, largely a matter of transferring a proprietary or secret formula preparation from one container to another. The results of the investigation indicated that physicians are holding in a large measure to the ideals urged on them by their instructors and emphasized by the Council on Pharmacy and Chemistry. (Jour. A. M. A., Sept. 5, 1925, p. 750.)

Bichloridol and Salicidol Not Acceptable for N. R.—The Council on Pharmacy and Chemistry reports that "Bichloridol" and "Salicidol" are the proprietary, uninforming names applied to suspensions, respectively, of mercuric chlorid and mercuric salicylate intended for intramuscular administration. These preparations are manufactured by the Collapsule Co., Inc., New York, and marketed by the H. A. Metz Laboratories, Inc., New York. The Council found "Bichloridol" and "Salicidol" inadmissible to New and Non-official Remedies, because they are marketed with indefinite statements of composition and under nondescriptive, proprietary names. (Jour. A. M. A., Sept. 5, 1925, p. 764.)

The American Academy of Proctology.—Physicians

have received letters inviting them to become charter members of the American Academy of Proctology of Evansville, Ind. The fee is ten dollars. The letters are signed W. G. French, Secretary-Treasurer. William Gale French holds a diploma from the Hahnemann Medical College and Hospital of Chicago, dated 1906. Medical Directories indicate that Dr. French has changed addresses many times since he was graduated. In 1906 he was at Brook, Ind.; in 1909 at Greensburg, Ind.; in 1910, Indianapolis; in 1912, Kingsburg and La Porte, Ind.; from 1914 to 1916, inclusive, he was in Chicago. Other records show that French was in Detroit in 1912 and 1913; in Evansville, Ind., and Chicago in 1920; and back in Evansville in 1923. In 1907, William Gale French and three others incorporated the "Harvey Medical College and Hospital," of Chicago (not to be confused with the Harvey Medical College of Chicago). The William Gale French Harvey Medical College changed its name to Jackson University in 1908; to Jefferson University in 1909; in 1912 the charter was dissolved. This so-called medical college apparently never had any actual existence as a teaching institution. The name of French has repeatedly appeared in the newspapers because of his connection with questionable activities and enterprises. In 1921, French appears to have been connected with the "National Health Laboratories," which advertised an alleged cure for piles. In 1923, William Gale French announced that he was "going to run straight." One year later, an advertisement of the "National Health Laboratories" appeared and the indications are that French was interested in this. (Jour. A. M. A., Sept. 12, 1925, p. 842.)

Zinc Stearate Poisoning.—The effects produced by the aspiration of zinc stearate consists in the production of an acute disturbance of the bronchi and lungs. The cases that have been reported can be divided into several types: (1) The fulminating variety composes one group, in which the onset is sudden and stormy, with rapid respiration and cyanosis. (2) In another group acute bronchial pneumonia develops. (3) In the third group of cases the course of the illness is brief. It has been shown experimentally that the inhalation of zinc stearate produces interstitial pneumonia and peribronchitis. Manufacturers should be prohibited from selling the powder in its present form: a self-closing container should be insisted on. (Jour. A. M. A., Sept. 12, 1925, p. 844.)

Disinfection of Houses.—It is generally recognized by the more progressive health authorities that house fumigation as heretofore practiced is of almost no value in the prevention of the spread of disease. Many pathogenic germs have only a brief existence outside the body, while even the more resistant varieties are not found on the walls, or ceilings, or hiding in the curtains of a sick room. They are found on articles that have come in contact with the patient. The tubercle bacillus is among the more resistant of the disease germs, partly because of the presence of a waxy substance in its cell wall and partly because in pulmonary tuberculosis it leaves the body inclosed in mucous matter, which protects it from the action of sunlight and other germicidal agents. It is doubtful whether the usual fumigators will be of any value in destroying these germs. The only practical, reasonable and effective treatment for a house or room that has been occupied by a tuberculous patient, is a thorough cleansing with soap and water; mechanical removal of material likely to contain the germs is preferable to

disinfection and fumigation. (Jour. A. M. A., Sept. 12, 1925, p. 845).

Robes' Anti-Rheumatic Injections.—While the advertising for Robes' Anti-Rheumatic Injections, which is sent out by Robes' Intravenous Products, Inc., leads one to believe that the product is some form of streptococcus vaccine, an advertisement containing a report of the analysis of the product indicates that the preparation consists of nothing more than minute amounts of mercuric chlorid and traces of guaiacum in a physiologic solution of sodium chlorid containing about seven per cent of alcohol. Neither mercuric chlorid nor guaiacum is recognized as having antirheumatic properties. The preparation has not been accepted for New and Non-official Remedies. (Jour. A. M. A., Sept. 12, 1925, p. 845).

What Constitutes a Satisfactory Drug?—A good summary of the requirements for a drug that can be considered a satisfactory therapeutic agent has been compiled by W. G. Christiansen, of the Medical School of Harvard University. The first dictum is that the essential therapeutic dose should be far below the toxic dose. Ease of administration is extremely advantageous. Stability is a quality of great value. Drugs that are readily soluble and are rapidly absorbed are to be preferred. Drugs for injection should not only be soluble, but should withstand sterilization and should not injure the tissue. To act efficiently, the substance should not be excreted or destroyed in the body before it has had time to act on the infective agent, nor should it be excreted so slowly that cumulation in the internal organs gives rise to symptoms of poisoning. Finally, tolerance to the drug should not be readily developed by the parasite against which the drug is to be used. (Jour. A. M. A., Sept. 19, 1925, p. 902).

Immunization Against Scarlet Fever.—Probably the best estimate of immunization with scarlet fever toxin is contained in the following quotation from an article by George F. Dick and Gladys Henry Dick, of the skin test for susceptibility to scarlet fever and the preventive immunization with scarlet fever streptococcus toxin: "The New York City Health Department has employed scarlet fever toxin in preventive immunization on a large scale, but has given it in doses too small completely to immunize a majority of susceptible persons. Zingher (The Dick Test in Normal Persons, and in Acute and Convalescent Scarlet Fever Cases, the Journal, Aug. 9, 1924, p. 432), reported the use of 100, 250 and 500 skin test doses, a total of 850 skin test doses. Toxin put up in this inadequate dosage has been widely distributed by commercial firms." The report of the Dicks shows that when from 1,000 to 3,000 skin test doses were injected, only 14.3 per cent were completely immunized. When from 5,000 to 6,000 skin test doses were injected, 66 per cent were completely immunized. When from 10,000 to 12,500 skin test doses were injected, 91.8 per cent were completely immunized. Correct increase of dosage is all important. (Jour. A. M. A., Sept. 19, 1925, p. 923.)

Tetanus Antitoxin.—To secure protection in severe cases of injury it is usually advised to give a second injection of antitoxin ten days after the primary one. (Jour. A. M. A., Sept. 26, 1925, p. 923.)

Thyroid Preparations.—Reid Hunt has recently pointed out that dosage with thyroid is largely empiric. The labels on the commercial preparations are as a rule not very elucidating. Dosage expressed

in terms of grains of fresh gland is about as rational as reference of the dosage of morphin to the fresh juice of the poppy. The iodine content of thyroid preparations has been made the basis for their pharmacologic evaluation, and the work of Hunt indicates that there is a close parallelism between the physiologic activity of thyroid preparations and their iodine content. So long as the laboratory workers can actually measure the comparative potency with considerable accuracy in relation to iodine content, physicians ought to be eager to grasp this easily determined index as a guide to therapy. There should no longer be justification for prescribing "thyroid tablets" indiscriminately, particularly when it is realized that one "tablet" may contain 2,500 times as much thyroid as another "tablet," the range which is shown to be possible. Very few of the thyroid preparations on the market comply with the U. S. Pharmacopeia Standard. If all physicians were to base the dosage in prescribing thyroid gland on the pharmacopeial product, known as "thyroideum s'cum" and to assure themselves that the product which they prescribe contains a definite amount of dried thyroid gland, the present state of confusion would be relieved and thyroid therapy would be placed on a more rational basis. (Jour. A. M. A., Sept. 26, 1925, p. 978).

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces the following open competitive examinations. Full information and application blanks may be obtained from the Commission or the Secretary of the Board of U. S. Civil Service Examiners at the post-office or custom house in any city.

For associate psychologist, receipt of applications to close December 8;

For associate social economist (prenatal and child nutrition), receipt of applications to close December 15;

For occupational therapy aide, applications for which will be rated as received until December 30.

Poor Eyesight Among School Children.

One-fourth of the public school children in the United States have defective vision and symptoms of eye strain, according to Joshua E. Hannum, of the Eyesight Conservation Council of America.

Ground Plan of Model Playground.

The Children's Bureau has on hand for free distribution a ground plan of its playground model. The model was prepared for the bureau as an illustration of how to use a lot of five acres or more as a recreation center for children.

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Editorial

Insulin in Diabetic Complications.

INSULIN IN DIABETIC GANGRENE

In diabetic gangrene and other surgical conditions of diabetes, our experience with insulin, in hospital practice, has been extremely satisfactory. Before insulin, such was not the case. Gangrene and surgery in diabetes before insulin assumed very different prognostic values. To the surgeon diabetes was always a factor of grave importance in evaluating patients as a surgical risk, and internists were not able then to help very much in any real way. But now, after insulin, it is different. Patients requiring surgical treatment, suffering with diabetes or having a high blood-sugar or signs of ketosis, may be, with diet and insulin, rendered far more favorable as surgical risks. Insulin and diet will enable the surgeon to operate in a field of tissue more free of hyperglycemia and upon a patient more free of toxins of ketosis. Such patients heal more quickly and suffer less complications. We recall one patient who escaped operation entirely as a result of a course of preparation which he appeared to need as a diabetic. He was brought into the hospital with what was taken to be an acute appendix, with circumscribed tumefaction in right iliac region. The surgeon, finding his urine loaded with sugar and a marked acidosis, requested that an effort be made to get the patient in better shape for operation. This was thought to be prudent in view of the grave diabetes and the apparently well walled-off appendicular abscess. The pa-

tient was put on the usual diet and insulin treatment, with ice-bag over his appendix, and in the course of his treatment for diabetes the blood-sugar fell to normal maximum, diabetic acid disappeared, and the tumor mass in the right iliac region also disappeared. The patient remained in the hospital for some weeks and the symptoms of the appendix region were relieved. The surgeon thought it better to forego the operation. This patient after two years, without insulin, is under dietary treatment, apparently doing satisfactorily without recurrence of appendix symptoms.

Gangrene of the foot in diabetes has always been an ominous surgical condition. Before insulin, when gangrene of the foot appeared in a diabetic, one was "put to it" to save the foot, the leg, or the patient. But now, with insulin, the surgeon and the internist feel a bit more sure of favorable results in this grave situation. We recall a patient who was brought to the hospital, January 25, 1924. The case was a man about fifty-two years of age, with a severe grade of diabetes, threatened with diabetic coma, semiconscious, with gangrene of the left foot, far advanced in all toes and one-third of the foot. His blood-sugar was 290 milligrams per 100 c.c. of blood; the urinary sugar was strongly positive, diabetic acid was marked, and the urine showed heavy albumin and numerous casts. The Wassermann was negative. The impending coma was thwarted by the hourly use of insulin hypodermically and the administration of orange puce and glucose solution. The surgeon, in consultation, considered conditions critical, and advised local treatment by heat and moist dressings. With the aid of an electric heating contrivance and a moist dressing of the gangrenous foot, the diabetes was put through an insulin and diet regimen. The patient experienced gradual relief from the severe symptoms, blood-sugar fell eventually to 80 milligrams, and sugar disappeared from the urine. He remained in the hospital about four months. Amputation of three toes and a part of the foot and a liberal skin grafting over the exposed tendons of the foot eventually brought to him a good "walking" foot. His diabetes is handled satisfactorily today with a carefully calculated and measured diet of about 1,700 calories. He developed eventually a carbohydrate tolerance of 110 grams. On a low maintenance diet he has

remained sugar free, his foot has given him trouble only once since his discharge from the hospital, and he has been able to perform his duties with ease and comfort. An appreciative letter from the patient, dated July 25, 1925, states, "I am still very thin, but am feeling comfortable and am active. So far as I can tell from urine examinations, I am free from sugar. I am still on a diet of 110 grams of carbohydrates, 80 to 90 protein, and 100 fats. Of course, my foot tires when I walk much, but, I suffer no great inconvenience from it."

This is merely one of many instances in our experiences where the use of insulin has rendered an inoperable surgical condition operable, and where cure was obtained in the face of what, without insulin, would probably have been an incurable condition. We speak here of the surgical, not diabetic, cure.

INSULIN IN HYPERTENSION AND BRIGHT'S DISEASE IN ASSOCIATION WITH DIABETES.

It appears from our clinical experience that cases of diabetes, suffering with high blood-pressure and Bright's disease, are more amenable to treatment since we have been using insulin with them. The regulation of the blood-sugar level by diet and insulin have helped to lower the hypertension and to improve kidney function. These patients, who require lower protein ration and a lower salt intake, with marked glycosuria and arteriosclerotic changes, require especial study in the matter of carbohydrates plus insulin with high fat and low protein. An hyperglycemia in these cases makes for more danger of uremia or cerebral apoplexy. A normal or approximately normal running blood-sugar, without ketosis, influenced and maintained by insulin administration and carbohydrate diet, makes for a better physical well-being in these cases. The emphatic lowering of hypertension under mere dietary management and insulin has enabled us to feel that some of these cases, apparently moving between the catastrophe of apoplexy, the danger of uremic coma, or acute myocardial failure, have been deferred from these terminations by the use of insulin. In these cases, with a lowering of the blood-pressure and an improvement of renal function, there is a marked liberation from the melancholia and despondency so common in this state. This

has been a very clear accomplishment of insulin administration in these chronic diabetic and hypertension cases. No untoward symptoms have been noted. Insulin is given once or twice daily until blood-sugar is lowered, and then carbohydrates are increased for a rise and insulin given to get combustion. Such a plan of administration seems to bring vitality, strength and mental improvement.

DANGER OF INSULIN IN RENAL DIABETES.

One must remember that glycosuria is not always diabetes mellitus, and it must likewise be remembered that glycosuria is not always a justification for insulin.

In renal diabetes, so-called, insulin is dangerous, for there may already be hypoglycemia. Administration of insulin would bring insulin shock, or collapse, and possibly death. We have recently had patients referred for treatment of diabetes, who showed a low blood-sugar determination, and at the same time a high urinary sugar test. One was a young woman referred as diabetes mellitus. She was very weak and emaciated, and complained of losing weight, thirst and polyuria. Blood-sugar was 80 milligrams per 100 c.c. of blood, and urine was positive for sugar. In 2,200 c.c. of urine there was 4.5 grams of sugar. She was gradually brought to a diet of 180 grams carbohydrates, 65 grams protein, and 110 grams fats; with blood-sugar to 80 mgms. per 100 c.c. of blood, no urinary sugar, and a gain of seven pounds in weight. She was first seen February 27, 1924, and has not shown urinary sugar for a year. She is in good health and reports excellent general health.

Another case was a man who was first seen August 20, 1923, complaining that he had had diabetes for nine years and wanted to take the insulin treatment, which he had heard so much about. When he entered the hospital, he weighed 136 pounds, urine showed heavy sugar, blood-sugar varying from 110 to 95 to 87.5 milligrams per 100 c.c. of blood at various times. Acetone was positive more or less constantly. He was under observation from September 8, 1923, to November 20, 1923. He gained ten pounds in weight. Urine continued to show sugar, but patient's general condition was markedly improved. When last seen, November 20, 1923, he was weighing 146.5 pounds. He was given sodium cacodylate in the vein,

and exercise for twenty minutes after meals was advised.

Another case was that of a man who consulted us May 22, 1924, with a diagnosis of diabetes, sugar having been found in the urine on insurance examination. His complaints were few, only hunger and thirst. He worked hard as proprietor of a lumber mill. He weighed 135 pounds; urine showed faint trace of sugar; blood-sugar was 70 milligrams per 100 c.c. of blood. He was given liberal starch diet. He gained several pounds in weight. At last report, June 11, 1925, patient was feeling fine.

In these cases there is probably no trouble with the insulin production. The trouble is in the renal tubules. These patients are glycose wasters: they leak sugar. Strength and well-being depend upon the metabolism of starch.

A. G. B.

Our President.

Dr. William Lett Harris, of Norfolk, Virginia, familiarly known among his legion of friends as Billy Harris, is the new President of the Medical Society of Virginia.

He was born in Brunswick County, Virginia, January 25, 1871, and was educated at private schools and at the Warrenton (N. C.) Male Academy. He began the study of medicine in 1891 at the University of Virginia and graduated from the Medical College of Virginia the next session in 1893.

He married Miss Josephine Macrum Graver, of Pittsburgh, Penn., in 1901. They have no children.

After graduation he served as interne at St. Vincent's Hospital at Norfolk, Virginia, for one year, and then took a year of post-gradu-

ate work in New York City. In 1895 he located at Virginia Beach where he was resident physician at the Princess Anne Hotel. His duties here gave him charge of the infants and children of the numerous guests of the hotel. His success in this line of work aroused so much enthusiasm that he was elected Physician-in-Charge of the Virginia Beach Infant Sanitarium and a considerable amount of money was raised to enlarge and supply it with modern equipment. He thus became a pioneer infant specialist and his

zeal and successful treatment soon gave him a wide reputation. This extended to every point where there was a mother who had had her sick child treated at Virginia Beach. Soon it became noted as a health resort for sick children, who were brought from a wide territory to be under his care.

He has always been interested in all matters that concerned the advancement of medical science. Of a broad and catholic mind, he was willing to acknowledge merit wherever found, and has been opposed to factions among doctors. His influence has always been to unite and stimulate to better work and to seek to have the energies wasted in quarrels and personalities devoted to the upbuilding of the profession as a whole.

He was appointed a member of the Board of Visitors of the Medical College of Virginia many years ago and was an earnest advocate of amalgamation with the University College of Medicine. He also favored union of the Medical College of Virginia with the University. He believed that one big medical school, embracing all the agencies and resources for medical education in Virginia, would mean more to the State and to the cause



WILLIAM LETT HARRIS, M. D.,
President, Medical Society of Virginia.

of medical education than divided and rival schools.

In his adopted home at Norfolk, he has been a powerful factor in destroying cliques and arousing a spirit of co-operation and emulation in the entire profession. Of a princely character himself, he would never stoop to speak evil of others and, as a consequence, has been a friend of all those who were seeking to elevate the standards of medicine. In the position of honor which the State Society has conferred on him he will likewise be useful and at all times will seek what is best for the organization.

C. R. R.

News Notes

The Richmond Meeting

Of the Medical Society of Virginia, like all good things, had to come to an end, so now we are beginning to think of next year's meeting in Norfolk. Those who attended this year will want to be on hand then and those who were not so fortunate this time should plan to take in the Norfolk meeting. There was a registered attendance of nearly five hundred members, besides ladies and exhibitors. Dr. Hunter H. McGuire, of Winchester, presided and everything went smoothly. Dr. Thomas D. Jones, general chairman of entertainment, and his able committee, with Mrs. Fred Hodges at the head of the Ladies' Committee, provided entertainment to fill all spare time, and everybody returned home tired but happy.

About thirty doctors entered the golf tournament staged at Hermitage Club. Dr. Manfred Call, Richmond, won the cup donated several years ago by the Roanoke Academy of Medicine. This is to be held permanently by the member winning two consecutive tournaments. Dr. E. H. Terrell, Richmond, was runner-up in this tournament.

Entertainments included luncheon on Wednesday, at Pine Camp, Richmond's tuberculosis sanatorium, medical moving pictures that evening, and a reception and dance in honor of the president, president-elect, and invited guests on Thursday evening. We were fortunate in having as our guests this year Dr. Geo. E. de Schweintz and Dr. Alfred Stengel, of Philadelphia, and Dr. David S. Hillis, of Chicago. Dr. Wendell C. Phillips, of New York, presi-

dent-elect of the American Medical Association, was also present and gave an interesting talk on the "Achievements of the American Medical Association."

Dr. W. L. Harris, of Norfolk, was elected president for the coming year.

The Woman's Auxiliary held two interesting and well attended meetings which are reported under Proceedings of Societies, in this issue. Mrs. Southgate Leigh, Norfolk, was elected president of the Auxiliary, *vice* Mrs. Hunter H. McGuire, resigned.

Let every member feel it a duty to work for the success of his State and County organization. Team work is needed to put and keep our Society where it should be. Let's adopt as our slogan some verses published by the A. M. A., several years ago:

"It aint the individual
Or the army as a whole,
But the everlastin' team work
Of every bloomin' soul."

The Clinical Congress of the American College of Surgeons

Held its fifteenth annual session in Philadelphia, the last week in October, under the presidency of Dr. Rudolph Matas, of New Orleans. The attendance approached the 2,000 mark. The clinics at the Philadelphia hospitals were very instructive and largely attended. Among the distinguished foreigners who took part in the program were Sir William Arbuthnot Lane, of London; Professor Vittorio Putti, orthopedic surgeon, of Bologna, Italy; Dr. W. Blair Bell, of Liverpool, England; and the Right Honorable Lord Dawson, of Penn, physician-in-ordinary to His Majesty, the King of England. Lord Dawson delivered the fellowship address.

The following Virginia doctors were elected fellows of the American College of Surgeons at this session: Drs. Elisha Barksdale and Robt. P. Kelly, Lynchburg; Drs. A. I. Dodson, B. F. Eckles, J. Blair Fitts and Thos. Wheel- don, Richmond, and John H. Neff, University. In addition to these there were about fifteen Virginia doctors in attendance. Dr. A. Murat Willis, Richmond, was the only Virginian on the program, his subject being "The Mortality In Important Surgical Diseases, Especially Appendicitis."

The Hospital Standardization Conference was well attended and some excellent papers

were presented. A number of Virginia hospitals were found to be rated as Class A.

Married.

Dr. Beverley F. Eckles and Miss Annie Gill Dixon, both of Richmond, October 31st.

Dr. Bolling Jones Atkinson and Miss Eugenia Clementine Vincent, both of Emporia, Va., October 31st.

Dr. William Edward Smith and Miss Mary Elizabeth Berkeley Moring, both of Farmville, Va., October 22nd.

Dr. Robert Matthews, Norfolk, and Miss Mary Willis McLemore, Suffolk, Va., October 24th.

Dr. John Albert Tipton, Jr., and Miss Elizabeth Franklin Peters, both of Keysville, Va., October 17th.

Dr. Albert C. Van Reenen, formerly of Marlinton, W. Va., but now of Covington, Va., and Miss Gladys Camillia Vernillera, of Richmond, October 28th. Dr. Van Reenen was a member of the class of '24, Medical College of Virginia.

Dr. Robert Burwell Groves, of Lowell, N. C., and Miss Moody Schools, of Richmond, October 10th. Dr. Groves was also a member of the '24 class, Medical College of Virginia.

Dr. Powell G. Fox, Raleigh, N. C., of the class of '22, Medical College of Virginia, and Miss Shirley Kingsbury, of Scranton, Pa., recently.

Re-Elected Dean at Medical College of Virginia.

For the fourth consecutive year, Dr. Manfred Call, professor of clinical medicine at the Medical College of Virginia, has been elected dean of the school of medicine. At the same time, Mr. Robert F. McCrackan, associate professor of biochemistry, was elected secretary of the faculty, in which capacity he has served for the past five years.

Eighty-six counties of the hundred Virginia counties are represented in the registration in the four schools of the College this year, and 377 of the 564 students at the College are residents of Virginia. It is the policy of the College to give preference to Virginia students and this seems necessary when it is known that Virginia has at present but one physician to 947 inhabitants as against one physician to 753 inhabitants for the nation as a whole.

Dr. E. G. Brumback,

Of Luray, Va., is home again after spending several days in Washington, D. C., on professional business.

Dr. J. Shelton Horsley,

Richmond, by invitation, presented an illustrated paper on the "Relation of the Physiology of the Stomach to Gastric Surgery," before the Medical Society of the County of Kings, Brooklyn, N. Y. This Society has one of the largest private loan medical libraries in the world, ranking fourth in the United States.

Methodist Conference Endorses Work of State Board of Health.

The Virginia Methodist Conference, in session in Richmond, in October, passed a resolution commending the splendid work of the Virginia State Board of Health and petitioned the on-coming session of the General Assembly to provide ways and means by which the hospitalization of the poor of our State and public nursing, especially in rural territory, may be adequately taken care of.

Wilmer Institute Opened.

The initial unit of the Wilmer Eye Institute was opened in Baltimore, October 29th, as a part of the medical school and hospital of Johns Hopkins University. It is the first American medical center for research study of the causes of blindness and treatment of diseases of the eye. Dr. William Holland Wilmer, formerly of Washington, D. C., is director of the Institute.

Do Athletes Die Young?

The New York State Department of Health, in a recent Bulletin answers the following question by stating that "frequently going to the physical limit cannot be done without risk of injury but the notion that athletes die young from overstrain is a fallacy." Statistics compiled with regard to Harvard and Yale athletes were cited to show that athletes kept physically fit longer than other classes. "If the larger benefits which come from sports are kept continually in mind, the boys and girls are in sound physical condition, if their training periods are of reasonable length, if the number of contests is limited, if the coaching is in the hands of trained people of high character, then the dangers of overdoing competitive athletics will be reduced to a minimum."

Value of Toxin-Antitoxin Demonstrated.

To about the middle of October there were reported 200 cases of diphtheria in children in Richmond, this Fall. Of these, only three who were inoculated last year with the toxin-antitoxin had the disease. Last year, 3,000 of the 20,000 children under ten years of age in Richmond, were given toxin-antitoxin, and results so far this year seem to demonstrate the efficacy of the immunity.

Changes in Medical Staff at Eastern State Hospital.

Dr. B. I. Bell, recently first assistant physician at Eastern State Hospital, Williamsburg, has entered private practice in that place and has been succeeded at the hospital by Dr. E. H. Alderman, formerly second assistant physician.

Dr. P. G. Hamlin, recently connected with the State Epileptic Colony, has been appointed second assistant physician at the Eastern State Hospital.

Work of the Children's Bureau.

Under the Federal Maternity and Infancy Act, it is noted that nearly 600,000 infants and pre-school children were examined at child health conferences during 1924 and 1925. Forty-three states and Hawaii are co-operating under the Act, which provides Federal aid for the promotion of the welfare of mothers and babies. Provisional figures for 1924 of the vital statistics division of the Bureau of the Census indicate a substantial drop in the infant death rate for both urban and rural communities in the United States birth registration area but, even with this improvement, the United States rate is higher than in Australia, the Netherlands, Norway, Sweden, and the Irish Free State, and no state in the United States has so low a rate as New Zealand.

Dr. and Mrs. J. R. Adams,

Blackstone, Va., were recently called to Richmond by the illness of their son.

Dr. Clara King Dickinson,

A graduate of the Woman's Medical College of Philadelphia, has recently been appointed college physician of the Marion, Va., Female College.

Dr. N. J. Gould,

Recently of Norfolk, Va., has moved to New York, with offices at 2065 Grand Concourse.

The American Public Health Association

Held an unusually interesting and live meet-

ing in St. Louis, in October. The session on oyster sanitation was especially interesting, apparently all forces—engineers, health officers, laboratories and dealers—joining together to meet the situation.

Dr. Abraham Zingher, assistant director of the Health Department Laboratories, of New York City, presented further evidence as to the value of the Schick test and toxin-antitoxin immunization in the prevention of diphtheria.

The shortage of trained health officers was rather forcibly presented, it being pointed out that at present the demand is far greater than the supply and this demand is increasing yearly.

Among the Virginia health men noted at the meeting were Dr. L. J. Roper, Portsmouth; Dr. W. Brownley Foster and Mr. A. H. Straus, Richmond; and Dr. R. W. Garnett, Danville. Dr. E. C. Levy, formerly of Richmond, but now of Tampa, Fla., also attended and took an active part in the meeting.

Buffalo, N. Y., was selected as the next place of meeting, and Dr. Charles Edward A. Winslow, of Yale University, New Haven, Conn., was elected president.

Dr. B. E. Hunt,

Of the class of '24, Medical College of Virginia, has moved to Holden, W. Va.

Dr. Ropp Receives Award.

Last year, the Roanoke Academy of Medicine, through its president, Dr. S. B. Cary, offered a \$50 set of books for the best paper read before the Academy during the 1924-1925 session. At the meeting of the Academy in October, this prize was awarded to Dr. J. M. Ropp, of Roanoke, for his paper on "Potter's Version and Its Possibilities."

Dr. B. F. Noland,

Formerly of Spencer, Va., is now located at Bassetts, Va., where he will continue the practice of medicine.

Dr. S. W. Maphis,

Warrenton, Va., who has been undergoing treatment in Philadelphia, for sometime for his eyes, is much improved and has gone to Florida for a rest before resuming his work in Warrenton.

Dr. George Gay,

Richmond, after an illness of several weeks, resumed his practice early in October.

Baptist Hospital Receives Gift.

The Virginia Baptist Hospital, Lynchburg, Va., has been given \$75,000 by Mrs. Annie C. Mundy, of Natural Bridge, Va., for the construction of a second unit. This is intended as a memorial to her husband, her daughter and self.

The Medical Society of Maryland, Virginia and the District of Columbia

Will hold its regular semi-annual meeting in Washington, D. C., November 18, under the presidency of Dr. J. W. Bird, of Sandy Spring, Md. The usual interesting program has been prepared. Dr. Jos. D. Rogers, of Washington, is secretary.

Dr. W. J. Otis,

An alumnus of the Medical College of Virginia and former resident physician at Memorial Hospital, Richmond, has been appointed assistant professor of neurology in the Department of Medicine of Tulane University, New Orleans, La. He was also appointed neuro-psychiatrist to the recently opened Soniat-Mercy Hospital and lecturer on neuro-psychiatry and mental hygiene to the Training School of that Hospital.

The State Colony for Epileptics and Feeble-minded

Has issued its report for the period from October 1, 1923, through June 30, 1925. The beginning of this period found every bed in the institution filled, there being at that time 632 patients. A new building with a capacity of 100 beds was opened the following April but this was soon filled and the institution has remained crowded to the present time. During the whole of this period the health of the patients has been unusually good; there have been no epidemics and the death rate has been low. Recreation and work for the patients has been about the same as for former reports.

Dr. A. S. Priddy, superintendent of the Colony from the time it was chartered as an independent institution in 1910, died last January, and has been succeeded by Dr. John H. Bell, first assistant physician.

The Medical Follies.

Under the above caption, Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, has published a number of essays which portray in a most attractive style the rise and fall of the various so-called

"healing" cults and medical subjects which will always be of interest to a curious public. Some of these essays have been published before and some have been prepared especially for the present volume.

It is a book in which every physician will be interested because of its exploitation of the fads in medicine which constantly attract the attention of an 'unthinking public, if for no other reason. Several editions of the book have been published since its first printing in September of this year.

Dr. J. L. Blanton,

Class of '24, Medical College of Virginia, completed a fifteen months' internship in a northern hospital, October 1st, and has located at Bramwell, W. Va.

Conserving the Sight of School Children

Is the title of a report which has been prepared by a joint committee of the National Education Association and the American Medical Association with the co-operation of the National Committee for the Prevention of Blindness. This states that 3,000,000 school children in the United States, or one-eighth of the entire school population, are handicapped in their education by defective eyesight. Only seventeen states make eye examinations of school children compulsory by law. In fourteen states the law is permissive. Rural districts generally report a larger percentage of defective vision than city districts. The explanation of this difference may be due to the differing factors as conditions under which the test results were obtained and impress the necessity for a uniform law for the examination of the eyes of school children by all states and cities.

Dr. and Mrs. W. C. Rosser,

Rustburg, Va., were recent visitors in Charlottesville, Va.

Dr. Frank Helvestine,

Recently of Roanoke, Va., announces the opening of offices at 323-324 Masonic Temple, Danville, Va. His practice will be limited to surgery, gynecology and surgical pathology. Dr. Helvestine is an alumnus of the University of Virginia School of Medicine.

Dr. D. N. Twyman

Has returned to his home at Appomattox, Va., after spending some time in Florida looking after his real estate interests.

The Railway Surgeons' Association of Virginia

Met during the session of the Medical Society of Virginia, in the Tea Room of the Jefferson Hotel at 2:30 P. M. on Thursday, October 15, 1925.

At its initial organization it was decided that the purposes of the organization would be business and no scientific matters would be presented at the meetings until later. This policy of the association was continued.

Dr. A. M. Willis, Richmond, president of the Association for the past six years, and Dr. E. L. Kendig, Victoria, secretary for the same length of time, declined re-election. The following officers were then elected for the coming year: Dr. W. L. Powell, of Roanoke, Va., president, and Dr. Marcellus Johnson, of Roanoke, secretary.

Dr. Fred E. Hamlin,

Formerly of Staunton, Va., located recently in Roanoke, Va., and opened offices in Shenandoah Life Building, in partnership with Dr. G. M. Maxwell. Dr. Hamlin has spent some time in post-graduate work at Medico-Chirurgical Hospital, Philadelphia, and last summer received his degree as master of medical science in otolaryngology at the Graduate School of Medicine, University of Pennsylvania. He also passed the American Board of Otolaryngology, held at Medico-Chirurgical Hospital, Philadelphia.

Health Service for Preschool Children, New York.

The Mulberry Health Center, New York City, has for six years maintained a health clinic for the periodical examination of preschool children and a staff of nurses for follow-up work in the homes. The center has analyzed its expenditures and now reports that this service costs, on the average, \$2.22 per child.

Dr. Stanton K. Livingston,

University, Va., who graduated from the University of Virginia last June, has just entered upon his duties as a resident physician at the University of Pennsylvania Hospital, Philadelphia, to which he received appointment at time of his graduation. He has recently been on duty at the State Hospital, Middletown, N. Y.

Dr. and Mrs. John B. Bullard

And small daughter, of Richmond, have returned home after a motor trip of several weeks to Florida, where they visited Dr. Bullard's brother and went as far south as Miami.

Dr. W. F. Draper,

Assistant surgeon general of the U. S. Public Health Service, addressed the Petersburg Rotary Club at its regular meeting early in October.

Dr. Jos. T. Graham,

Of McGuire Clinic, Richmond, recently visited his former home near Pulaski, Va.

Surgeon General Hugh S. Cumming,

Washington, D. C., sailed early in October for a visit to several European ports.

Dr. Carrington Williams

Was elected president of the Richmond Chapter, University of Virginia Alumni Association, at its annual meeting October 1.

The Kentucky State Medical Society,

At its annual meeting, the first week in October, elected Dr. Robert L. Woodard, Hopkinsville, president, and Dr. Irvin Abell, Louisville, president-elect, and re-elected Dr. Arthur T. McCormack, of Louisville, secretary. Frankfort was selected for the 1926 meeting place.

Dr. Charles E. Conrad,

Harrisonburg, Va., has been spending sometime in St. Louis, Mo., where he has been doing post-graduate work in pediatrics.

The Tenth District Medical Society of North Carolina,

At its last meeting, under the presidency of Dr. Louis G. Beall, of Black Mountain, N. C., elected Dr. Francis M. Davis, of Canton, and Dr. John La Bruce Ward, of Asheville, president and secretary, respectively.

Dr. and Mrs. Fauntleroy Flinn,

Of Miami, Okla., formerly of Roanoke, Va., have been on a visit to Dr. Flinn's parents near Alberta, Va.

Golden Rule Sunday.

December the 6th has been set aside as Golden Rule Sunday, when every one is asked to eat an humble meal, such as the homeless children under American care in the Near East eat every day in the year, and then to aid the cause as he can. A great deal of medical work is being done in the Near East Relief.

and Dr. Wendell C. Phillips, president-elect of the American Medical Association, has accepted the chairmanship of the Golden Rule Sunday Co-operating Committee as the representative of the medical profession.

Dr. Ramon D. Garcin

Was elected a member of the Richmond City School Board from First District, early in October, succeeding Dr. Wm. H. Parker, who resigned as he moved from that District.

National Board of Medical Examiners.

Connecticut and Utah are now added to the states which accept the certificate of the National Board of Medical Examiners, qualifying physicians to practice in them. This certificate is now recognized in more than thirty states and in Great Britain. At the June medical examinations, a total of 508 were examined, which is the largest number ever to take the written examinations of the National Board.

Dr. and Mrs. A. M. Saunders,

Norfolk, spent several days with friends at New Canton, Va., in October, after an automobile trip through Eastern Pennsylvania and the Valley of Virginia.

Cancer Control in Europe.

George A. Soper, managing director of the American Society for the Control of Cancer, has returned to New York after a three months' investigation of the problem of cancer control in Europe. He reports that great interest and activity are being shown in research work into the fundamental causes of cancer and in providing patients with the best means of treatment which the existing state of knowledge permits. Surgery, radium and X-rays still afford the main reliance which science and experience have thus far developed for the cure of this disease.

The Association of Military Surgeons of the United States,

At its recent meeting in New York, elected Surgeon General Edward R. Stitt, U. S. N., president to succeed Surgeon General Hugh S. Cumming of the U. S. Public Health Service. Col. Jefferson R. Kean, U. S. Army, retired, was re-elected secretary.

The Eighth District Medical Society of North Carolina

Held an interesting meeting in Reidsville, the latter part of October, under the presidency of Dr. J. W. McGehee, of that place. In addition to papers by several members, papers were

presented by Dr. Stuart McGuire, of Richmond, and by the President of the North Carolina Bar Association on "Forensic Medicine." Elkin was selected as the next place of meeting and Dr. H. C. Salmons, of Elkin, was elected president for that meeting and Dr. M. A. Royal, also of Elkin, secretary.

Dr. F. M. Hisey,

Of Edinburg, Va., recently visited friends in Front Royal, Va.

The Ninth Annual Roll Call.

Armistice Day. Peace.

On the Western Front the shell holes are filled, the barbed wire is rolled in bales and flung out of the way of the plow, or left to rust into the ground, no longer rocked by gun-fire.

Peace—but not for the Red Cross.

In the hospitals all over the country thousands of service men still need its ministrations, helping them to solve their personal problems, comforting them in the long stay in hospital, or keeping in touch with their families.

In every part of the country, 1,000 public health nurses of the Red Cross are fighting to maintain community health.

Five states of the mid-West this year experienced the worst disaster in American history, necessitating the greatest post-disaster rehabilitation ever known, which is just being concluded by the American Red Cross.

Thousands of people needlessly die every year in water accidents, in the past few years mounting to a casualty list surpassing that of war. This year the Red Cross trained 21,000 men, women and youths in water rescue and resuscitation. It trained this year alone, 18,000 persons in first aid to the injured.

The Red Cross does these things and innumerable others for the benefit of humanity.

To combat extraordinary emergencies such as may strike anywhere, any moment, there is kept ready an enrolled reserve of 41,000 nurses and adequate equipment, which can be thrown into action in a moment. The National Organization and more than 3,000 chapters and local units insure its protection all over the country.

On Armistice Day, the day of Peace, the American Red Cross will seek new strength to carry on its battles. On this day begins the Ninth Annual Roll Call, to be continued until

Thanksgiving Day, during which the American people will be asked to support with their membership, this work which is done in their name. Upon the funds derived through its membership depends the extent to which the American Red Cross can continue to serve during the coming year, as it has in the past. The membership fee is only one dollar a year. Won't you sign up at your nearest station?

The Southern Surgical Association

Is to hold its annual meeting in Louisville, Ky., December 15, 16 and 17, and an excellent program is being arranged. Dr. Irvin Abell, Louisville, Ky., is president, and Dr. Hubert A Royster, Raleigh, N. C., secretary.

Dr. Paul E. Redd,

After practicing in Richmond for a number of years, has moved to Yorktown, Va., where he will make his home and continue the practice of his profession.

Draft Convention Ratified by France.

On August 6, 1925, the French Chamber of Deputies ratified the Washington draft convention prohibiting the night work in industry of minors under 18 years of age (with certain exemptions for minors 16 to 18). Legislation substantially to this effect has been in existence in France for a number of years, but on January 24, 1925, for the purpose of securing conformity with the provisions of the convention, certain amendments to the old law were passed, including the addition of transportation, loading, and unloading to the list of industries in which the employment of minors under 18 years of age is prohibited.

Dr. Charles B. Crute,

Farmville, Va., attended the annual conference of post commanders and adjutants of the posts of the department of Virginia, American Legion, which was held in Charlottesville, during the last week in October.

The Association of Ex-Interns of St. Elizabeth's Hospital

Held its second annual meeting at the hospital in Richmond, Va., October 6th, with the following members present: Drs. W. C. Caudill, Pearisburg; R. H. Cross, Concord Depot; E. L. Caudill, Narrows; Wright Clarkson, Petersburg; J. R. Dunn, Sumter, S. C.; H. H. Harris, Anderson, S. C.; W. G. Rainey, Baltimore, Md.; G. R. Fisher, Staunton; and A. A. Houser, O. O. Ashworth, A. I. Dodson, T. L.

Driscoll, and J. S. Horsley, Jr., of Richmond. Preceding the morning session, there was a clinic by the Hospital staff. Two sessions were held, Dr. Guy R. Fisher, of Staunton, presiding, and a number of interesting papers were presented at both sessions. Following the morning session, luncheon was tendered the visitors at Commonwealth Club and, in the evening, a supper was given at the home of Dr. J. S. Horsley, following which there was time for the doctors to attend the State Fair, if they so desired.

Dr. Wright Clarkson, Petersburg, was elected president; Dr. W. C. Caudill, of Pearisburg, vice-president; and Dr. J. S. Horsley, Jr., secretary-treasurer.

Dr. D. Hunter Marrow,

Union Level, Va., has gone to Florida for the winter, as has been his custom for the past few years. He will be at 217 Live Oak Avenue, Daytona.

Western State Hospital Adds Acreage.

The Western State Hospital, Staunton, Va., has purchased a 252 acre farm adjoining that of the hospital, which is to be used by the patients for agricultural and dairy purposes. It is hoped eventually to have enough land so that each patient may be allotted one acre. Some of the patients are also engaged at this time in building a home for a member of the staff, which makes the expense of building about one-half of what it would otherwise be.

Dr. and Mrs. John O. Boyd

Returned to their home in Roanoke, Va., the latter part of October after a visit to relatives in Winchester, Va.

The South Piedmont Medical Society

Will hold its next meeting in Lynchburg, Va., November 17. Dr. Ray A. Moore, Phenix, is president, and Dr. George A. Stover, South Boston, secretary.

Examination for Entrance into Regular Corps of U. S. Public Health Service.

Examinations of candidates for entrance into the Regular Corps of the U. S. Public Health Service will be held December 7, 1925, at Washington, D. C., Chicago, Ill., New Orleans, La., and San Francisco, Cal. Candidates must be between twenty-three and thirty-two years of age and have had one year's hospital experience or two years' professional practice. Requests for information or permission to take

this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Endowment for N. C. Medical School.

The will of Mr. James Duke, who died in October, adds an endowment of \$10,000,000 in addition to the \$40,000,000 given several months ago. It is specified that part of this bequest shall be used for erecting and equipping buildings suitable for a medical school, hospital and nurses's home at Duke University, Durham, N. C.

Dr. George B. Martin,

Formerly of Richmond, who has been under treatment since his return from the World War, is now at Building I-11, Oteen, N. C.

Dr. Susan W. Field,

Resident physician and medical inspector of Farmville State Teachers' College, is at her post of duty again after a vacation spent at her former home in Lincoln, Nebr.

Petersburg Receiving Congratulations.

Petersburg, Va., is receiving the congratulations of the State in the opening of the splendid bridge over the Appomattox River and also of the new armory, the second floor of which will house Petersburg's Health Center. It is a pleasure to note that one of the medical profession, Dr. William F. Drewy, now City Manager of Petersburg, is recognized as one of the "powers behind the throne" in putting over this big project, along with former City Manager Brownlow and the City Council.

Dr. Charles H. Moncure,

Orange, Va., has been elected health officer of that place.

Dr. Lewis B. McBrayer,

Southern Pines, N. C., was elected president of the Southern Tuberculosis Association, at its meeting held recently in Memphis, Tenn. The Association will hold its next annual meeting in Washington, D. C., in the Fall of 1926 in conjunction with the International Tuberculosis Association.

Wanted—

Interne at Roanoke Hospital, Roanoke, Va. 100 beds; new, modern building and equipment. \$75.00 per month, room, board and laundry. Address H. G. Lacy, secretary. (Adv.)

Wanted—

Bookkeeping and secretarial work. To Richmond doctors not requiring the services of a full time bookkeeper or secretary, I can render prompt and efficient service in this capacity at a small monthly cost. Phone Madison 5704. (Adv.)

Position Wanted in Doctor's Office.

Active middle-aged lady desires position in doctor's office in Richmond. Small compensation accepted. Phone Madison 5704. (Adv.)

Obituary

Dr. Lanier Dunn Pole,

A prominent physician of Hot Springs, Va., was stricken with apoplexy while driving his car from Hot Springs to Charlottesville, on October 17th, and died in a few minutes. He, Mrs. Pole and two friends were on their way to Charlottesville to meet his son and attend a football game. His wife, took the wheel and rushed the car to a Staunton hospital, but Dr. Pole died before reaching there. Dr. Pole was forty-one years of age and studied medicine at University College of Medicine, Richmond, from which he graduated in 1906 and served the following year as a resident physician at Retreat for the Sick, this city. He joined the Medical Society of Virginia the same year. He was also a member of the Covington-Hot Springs Rotary Club. Dr. Pole is survived by his wife, a son and several sisters and brothers, one of them Dr. E. A. Pole, with whom he was associated in practice at Hot Springs.

Dr. James Barbour Boldridge,

A prominent physician and citizen of Culpeper County, died at his home near Culpeper, Va., October 1, death being due to angina pectoris. Though he had been in bad health for sometime, he was ill only a short time. Dr. Boldridge was seventy-two years of age and studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1893. He joined the Medical Society of Virginia the following year. He was twice married. His second wife and four children by a former marriage survive him. He was the father of Dr. J. Russell Boldridge, of Hazel River.

Dr. George Clifton Hall,

Medical director of the Life Insurance Com-

pany of Virginia, died suddenly of apoplexy. October 13th, at his home in the suburbs of Richmond. Dr. Hall was a native of Massachusetts and received his medical education there, graduating from Harvard University, Boston, in 1890. He had made his home in Richmond for about twelve years and was a member of the local and State Medical Societies as well as of the American Medical Association. Prior to moving to Richmond, he practiced in both Boston and New York. He is survived by his wife and a step son.

Resolutions on Death of Dr. George C. Hall.

At a meeting of the Richmond Academy of Medicine, held on October 28, 1925, the following resolutions were adopted:

WHEREAS, The Richmond Academy of Medicine, in the death of Dr. GEORGE C. HALL, is again called, in the course of a few months, to deplore the loss of one of its members, a man who was eminent in his particular branch of medicine, and loved by those who knew him, be it resolved,

FIRST, That the Academy feels his passing most keenly;

SECOND, That it offers its deepest sympathy to the members of the mourning family, praying that their grief may be assuaged in the contemplation of a life well spent; and,

THIRD, That these resolutions and preamble be spread upon the minutes of the Academy; that a copy thereof be sent to the family; and that they be published in the *Virginia Medical Monthly*.

(Signed)

FRED. M. HODGES,
WM. H. HIGGINS,
JAS. H. SMITH,
Committee.

Dr. Andrew Jefferson Nelson.

A former resident of this State, who practiced in Hanover County and Richmond until about eighteen years ago, died at his home in Seattle, Wash., November 2nd, at the age of sixty-five years. Dr. Nelson received his medical education at Columbian University, Washington, D. C., from which he graduated in 1893. He joined the Medical Society of Virginia in 1896 and retained his membership in this Society to the time of his death. On his occasional visits East, he was always a visitor at the Society's offices. In the latter part of 1907, he moved to Seattle, Wash., where he has since been connected with the U. S. Public Health Service. His wife and several children survive him.

Dr. George Tucker Harrison,

Formerly a familiar figure at the meetings of the Medical Society of Virginia, of which he was an honorary member, died at his home in New York, October 4th, at the age of

ninety years. He attended church in the morning and was taken ill later in the day, dying that evening. Interment was made at his former home at Charlottesville, Va. Dr. Harrison was an A. M. of the University of Virginia and also a graduate in medicine from the same school. He served as surgeon of the 24th infantry throughout the War between the States and had always retained his interest in Confederate affairs. He specialized in gynecology and was long recognized as a leading gynecologist of New York City. Three children survive him.

Resolutions on Death of Doctor Richard Urquhart Burges.

"Not till the loom is silent
And the shuttles cease to fly
Shall God unroll the canvas
And explain the reason why;
The dark threads are as needful
In the weaver's skillful hand
As the threads of gold and silver
In the pattern He has planned."

WHEREAS, It has pleased Him, who "Moves in a mysterious way His wonders to perform" to call from his labors our beloved friend and associate, Richard Urquhart Burges;

BE IT RESOLVED, by the staff of the Norfolk Protestant Hospital that we deplore the loss of his wise counsel and magnetic personality from our membership.

RESOLVED, That we extend our sympathy to her who knew him best and loved him most.

RESOLVED, That a copy of these resolutions be spread upon the minutes and be published in the daily papers.

L. F. MAGRUDER,
B. M. BAKER,
N. G. WILSON,

Dr. David F. Dinsmore,

Formerly of Lynchburg, Va., died the middle of October at Decatur, Ala., to which place he moved several years ago when his health failed. He graduated in medicine from University of Louisville in 1872 and was at one time a member of the Medical Society of Virginia.

Dr. Dewey Everett Westerman,

Of Clifton Forge, Va., an interne at Welch, W. Va., Hospital, was killed on the night of October 30, when the car in which he was driving plunged over an embankment of a street in Welch. He was twenty-seven years of age and graduated in 1924 from the University of Tennessee College of Medicine in Memphis, following which he served an internship at Bayonne, N. J., Hospital and Dispensary before going to Welch.



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OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 52, No. 9.
WHOLE No. 882.

RICHMOND, VA., DECEMBER, 1925

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Original Communications

CONCERNING HEADACHES WITH RESPECT TO THEIR SO-CALLED DISTINCTIVE FEATURES.*

By G. E. de SCHWEINITZ, M. D., Philadelphia, Penn.

Headaches, always symptomatic, in certain circumstances either as acute or as chronic manifestations, may assume features with respect to character and localization which have been described as "distinctive," and which are supposed to indicate the morbid process or area to which they—the headaches—owe their origin.

It is the purpose of the present essay to discuss cephalalgia from this standpoint, independently, however, of true neuralgias, for example, tic douloureux and real migraine, which may be regarded as clinical entities, and not as symptomatic interpretations.

With this viewpoint in mind, a further effort shall be made to indicate the ease with which the examiner may fall into diagnostic error if, satisfied with a labelled surface play of local or general disease, he fails to recognize the mimicry of head-pains, and thus misses the etiologic factor.

Headaches, their cause, prevention and cure, have occupied the attention of physicians from the time of Hippocrates to the present day. Numerous contributions are available in the literature, wherein these matters are discussed from all standpoints. Hence, the only excuse for introducing this subject this evening is that its portrayal is based on the experience of a good many years of active practice, much concerned with the attempted relief of headaches, and with a study of the etiologic factors. What follows may be regarded, in large measure, as a record of personal observation, to be balanced with that of many practitioners in the audience, let us hope to the benefit of all those concerned.

As a prologue to this discussion, a few words

may be said with respect to the mechanism of headaches.

In their presence it is natural to assume that the sensory or sensation centers of the brain are at fault, or that the true activating cause, a toxin, for example, affects the vaso-motor centers in such a manner that a vaso-motor spasm ensues, and that this spasm determines the headache.

Should we follow the example of certain Continental authors, an endeavor may be made to trace the pain pathways anatomically, inasmuch as headaches, to use Auerbach's words, "are perceived in the innervation area of the trigeminus, and perhaps that of the sensory branches of the upper cervical nerves."

Admittedly, some of these published observations are more or less theoretical, as Auerbach points out. It is assumed that headaches, that is, intracranial head-pains, depend upon an irritation of the nerves of the dura mater, the arachnoid being without nerve supply, and the pia mater containing only nerves derived from the sympathetic system. If the last two named areas are diseased, the pressure they exert on the dura mater gives rise to the pain.

The dura is abundantly supplied by sensitive nerves. That part (quoting Auerbach's description) which is in relation with the anterior part of the skull, receives its nerve supply from the meningeal nerve, which arises from the second or maxillary branch of the trigeminus, and the anterior and posterior branches of the ophthalmic nerve; the dura of the middle fossa is supplied by the recurrent twigs of the mandibular branch of the fifth, and that of the posterior fossa by the tentorial nerves (derivatives of the first division of the fifth) and recurrent sensory branches from the sympathetic, hypoglossus and vagus. Doubtless sensory branches of the sympathetic in the vessel walls are a factor, as already noted, in headache production, that is, in conveying the impulse which causes a vaso-motor spasm and thus the pain.

Summarizing, therefore, headache as defined

*Read by invitation at the fifty-sixth annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

may interpret irritation or disturbance of the sensory or sensation centers of the brain, of the nerves or nerve-endings of the dura mater, and of the vaso-motor mechanism.

The source of the irritation may be one which acts directly by pressure, for instance, increased intracranial tension, in the presence of cerebral neoplasm; or indirectly through the agency of blood vessels which are either in a state of contraction (vaso-motor spasm), or in a state of dilatation (vascular hyperemia); or by means of a toxin, for example, one elaborated during fever, or from a gastric, intestinal, renal, hepatic, etc., disturbance, or through the influence of a chemical agent, *i. e.*, alcohol, tobacco and the like.

Naturally, the pain may be due to the combined effect of two factors, for example, in sinus headache the congested mucous membrane presses on the nerve terminals, which are also affected by a toxin liberated by the infecting microorganism (Skillern). Again, the area which supplies the source of irritation may itself be painless, the distress being localized at a distant point. This is an important clinical fact to which reference shall again be made, but which is sometimes disregarded.

As is well known, numerous efforts have been made to tabulate diagnostic indications according to the seat of the pain in the head, and many diagrams have been constructed illustrating this method of investigation, for instances, a marked oval area above the brow as the site of predilection for an ocular headache, a similar larger area at the vertex for a neurasthenic headache, the temple for a dental headache, a space at the top of the head just behind the edge of the hairy scalp for a nasal headache, the occiput for uterine headache, etc.

It is not disputed that the headaches named as examples often occupy the areas described, doubtless in some instances more often than elsewhere in the cranium, nor is it denied that such regional studies have a certain diagnostic value if they are added to other lines of investigation. But it must be evident that the practitioner is in danger of error in diagnosis of the source of the headache if he too strictly associates it with definite cranial regions.

The classification of headaches with relation to their supposed etiology, not only according to their location, as just referred to, but according to their characters or manifestations,

has received much attention, and expressions such as "he has a typical eye-strain headache," "a representative gastric headache," "a marked pituitary body headache," etc., are constantly heard in consulting rooms, and are often recorded in case histories. Such headaches, it is assumed, have "distinctive features" from which the physician may infer the origin of the pain, that is, the true cause. Thus, a pressure-pain, band-like around the skull, or a dull pain associated with a sense of heat at the vertex, or a pain as if the skull were held in a vice, being seemingly too full, or again too empty, with or without frontal pain (the "Casque neurasthenique" of Charcot), constitute syndromes usually ascribed to neurasthenia, that is, neurasthenic headaches.

Again, the term "pituitary body headache" is of common occurrence in medical literature, and it has been maintained that it is possible to distinguish this form of headache from other forms of cephalalgia. Less intense than the headaches of brain tumor, and less frequently associated with nausea and vomiting, in situation it may be occipital or parietal and radiating, but more suggestively primarily frontal and later bitemporal, increased by tipping the head sidewise, or bitemporal, indicated by the patient in that the hand is placed on each temple, with the statement that the pain is midway, *i. e.*, intertemporal, or the finger is placed midway between the eyes, pointing backward, or at the anterior fontanelle, pointing downward, in other words, these lines of direction, thus indicated, converging toward the pituitary region (Timme's type); or unilateral and temporal, simulating migraine, in some cases with prodromal visual phenomena—phosphenes, vibratory scotomas, and the temporary hemianopsia. Finally, it may simulate typical migraine with prodromal visual phenomena. These types, especially the bitemporal one, are among those forms of head-pain which suggest hypophyseal disease.

The distinctive feature of a dental headache, according to a number of authorities, is more concerned with its localization than with the character of the pain, as already noted. Sir Lauder Brunton more than forty years ago maintained that a decayed molar in the lower jaw usually gave rise to a temporal or occipital headache, and a similar dental infection in the upper jaw to a temporal headache, rather fur-

ther forward than that caused by the lower jaw. When the incisors were infected, he believed the head-pain more commonly had a frontal or a vertical situation.

Referring next to para-nasal sinus headaches, it may be said that their manifestations are often so suggestive that they are regarded as typical. Ross Skillern, who has admirably studied this subject, asks "Do we have a typical sinus head pain?" and replies "Broadly speaking, this can be answered in the affirmative, but with reservations." Naturally, the severity of the pain depends upon the nature of the sinus infection and the degree of congestion. Hence, it may be splitting, or throbbing. It appears soon after the patient awakes in the morning, continues until about the middle of the day, and then suddenly ceases, to recur again the next morning, and in the same place unless the affection has spread to a neighboring cavity. Such a condition, to quote Skillern, is practically typical of sinus disease, but exceptions are frequent.

Systematic writers, for instance Ross Skillern, discriminate between the headaches caused by the frontal, the sphenoid sinus, and the ethmoid. Time does not permit a discussion along these lines save only in very brief statement, as follows: Ethmoidal inflammation is apt to create a headache in the parietal region, but also between the eyes and above the nose, where the sensation is that produced by a wedge, prying apart the tissues, and, if it is present, the manifestation is said to be distinctive.

The head-pain of sphenoiditis may assume the characters of the pressure type, extending from the occiput to the temporal regions. But it (the pain) may also pass downward into the shoulder of the affected side, resembling in this respect the spheno-palatine syndrome of Sluder (Ross Skillern). Naturally, in the presence of an acute process the pain is intensified, throbbing, sickening in character; a curious associate of the pain caused by frontal sinus inflammation—the pain being forehead in situation, which I have several times observed and to which Skillern calls attention, is a degradation of the power of concentration, which, if the distress is aggravated, gives rise to a form of melancholia, which may be acute. It is interesting to observe how constantly the statement appears in non-ophthalmologic

literature that eye-strain headaches almost always have a frontal situation—no matter what the character of the pain manifestation may be—beginning above one or other brow, and extending over the forehead; less frequently an occipital location is described. This frontal situation seems to many writers to be a characteristic one.

The headaches due to increased intracranial pressure, especially as the result of extra- and intra-cerebral and cerebellar growths, often persistent for long periods of time, are subject to remissions, and may be absent for weeks and even months at a time. More often than other headaches of long and continuous duration, they are accompanied by vomiting (it may be explosive) and nausea, although all types of head-pain—the bursting, gnawing and boring character—are conspicuously mentioned.

These are some of the examples (many others might be used) familiar to all of us, of headaches which are assumed to exhibit distinctive, or at least suggestive, features.

Before proceeding to analyze these groups, and to point out marked exceptions to the rule which tend to prove that it is quite unsafe to depend upon so-called distinctive features for diagnostic indications, it is worthwhile to record certain facts which, even though they may be well known, are often neglected or forgotten:

1. The organ or area which, owing to disturbed function or inflammation, gives rise to headache, may itself be entirely free from pain. Thus, in many of the most active ocular headaches, the eyes are painless; or, as Weir Mitchell in his famous pronouncement fifty-three years ago wrote: "the brain symptom is often * * * the sole prominent symptom of the eye troubles, so that while there may be no pain or sense of fatigue in the eye, the strain with which it is used may be interpreted solely by occipital and frontal headache."

Again, a carious, deflected or buried tooth, which may be the cause of violent temple or other placed headaches, may itself be, and often is, entirely devoid of pain, as Lauder Brunton pointed out forty odd years ago.

A few stopped or inflamed ethmoid cells may give no indication by pain or soreness of their existence, and yet be the source of violent tem-

ple or interorbital pain. This will suffice; the list could easily be extended.

2. The dysfunction of the organ or area which causes the headache may be trifling, and yet be as effective, or often more effective, as a pain-producer than when gross defects are present. For instance, "Has my patient enough refractive error to account for headache"? is a common question propounded by the general practitioner, who evidently believes that the error (muscular or refractive) must be a large one to be responsible for the head-pain. Remember that small degrees of ametropia are frequent headache producers, more frequently, in fact, than the large errors. The same is true of the teeth, tonsils, sinuses, the gastrointestinal tracts, etc.

3. Many patients have "two or even three kinds" of headache, and not infrequently the subject is able to differentiate them. This is, of course, well-known, but curiously enough, is often disregarded, with the result that proper avenues of therapeutic effort are missed. One of the most useful pieces of advice which I received in my early days was from a wise clinician who, correcting a mistake of my own, said, "Doctors fail not so often because they don't know, but because they don't examine." The application of this sentence is evident in the present circumstances.

The literature is replete with statistical information with reference to the relative frequency of the various types of headache. Such tabulations are largely only of academic interest. For obvious reasons their relative value as diagnostic indexes is a small one.

Auerbach, for example, after migraine, accords the first place in the list of etiologic factors to neurasthenia. Certainly in the symptom-complex of this condition, headache is a common member, but that is all; it is not the cause of the nervous exhaustion which follows the waste of mental and physical energy as the result of a number of influences.

In some cases, for example, as Mitchell neatly expressed it fifty-three years ago, "the eye trouble (*i. e.*, refractive or muscular error) becomes suddenly mischievous owing to * * * the increased sensitiveness of the brain from moral or mental cause." In other cases a long-continued eye-strain may be a prime factor in the development of the neurasthenic state. In either instance the correction of the refractive

or muscular error is an important factor in the management of the temporarily wrecked nervous mechanism.

A similar relationship may readily be established with reference to the neurasthenic state by a chronic sinusitis, a focal infection, or a toxemic state.

Proper therapeutics depends upon investigation of various possible causative factors, and not upon attention centered alone on the general nervous dysfunction. Such terms as "sympathetic," "congestive," and "nervous" headaches represent a misleading phraseology, which happily is now becoming obsolete.

It is interesting to pause a moment and recall how gradual the recognition was of the exact causes of headache, and how insistently practitioners cling to such descriptive terms as have just been stated, and, clinging to them, fail to grasp the true etiologic factor.

Thus, about forty years ago, in a well-known and much used treatise on headaches and their nature and causes, wherein will be found elaborate classifications of head-pain in the manner just noted, there is practically no mention of such definite causative agencies as eye-strain, sinusitis, areas of focal infection, etc., although the last edition of this book was published ten years after Mitchell and Thomson's eye-strain work was available, and at a time when Lauder Brunton had called exact attention to the enormous influence of ocular defects, and of dental and other local infections in the production of head-pain.

Doubtless, however, forty odd years from now our sins of omission with respect to diagnostic investigations will meet with, and justly, similar criticism. Hence, it behooves us to be gentle in our judgments and modest in our declarations.

I venture next a few clinical remarks with reference to the "distinctive features" of headache, as already outlined, and to errors of diagnosis or delayed recognition of the etiologic factors.

Harvey Cushing, in his admirable studies of brain and pituitary tumors, points out how frequently clinical histories of patients who came under his care indicated that for long periods of time their symptoms, including headaches, have been ascribed to hysteria or neurasthenia, and that the true diagnosis was not revealed

until, as he states, "it was read by means of the ophthalmoscope in the eye-ground."

But sometimes this "reading" is not available, or rather, the characteristic fundus picture is delayed in development. Thus, a male patient, with all the signs of mental and physical exhaustion, associated with the so-called "distinctive headache" of that condition was treated as a "rest-cure case" for a long period of time. It was only a few weeks before his death on account of brain tumor, that the ocular sign of increased intracranial tension, namely, choked disc, appeared. There was no lack of investigation of this patient, but always, it would seem, with an over-emphasis on the neurasthenic condition, to which the head-pains were attributed, and with failure to recognize the early fundus and field changes as we now accurately realize them.

Among the examples of so-called distinctive headaches, those occasioned by sinus infection have received notice. Cushing has emphasized the danger of unwise operations on the ethmoid and sphenoid sinuses in the belief that the headaches were of this origin, although actually due to meningeal or cerebral disease, which they had closely simulated. Skillern's observations on the throbbing, sickening pain caused by sinus inflammation, forehead in situation, especially with frontal sinusitis associated with mental disturbance and even melancholia, has been referred to. Hence, a very similar set of symptoms, of totally different origin, is worth mentioning, namely, that exhibited by patients with severe fronto-temporal pain, impairment of concentration and derangement of intellectual functions dependent upon the lesion, either an abscess or a tumor of the frontal lobe. The possibility of an error in diagnosis is further enhanced because a retrobulbar neuritis ipsilateral to the lesion is often present (the Gowers-Paton-Kennedy syndrome), exactly as the same condition may be associated with a sinusitis. Opportunity to study several such cases has indicated the difficulty in differential diagnosis, especially if the tumor patient happens also to have a sinusitis.

Elsewhere, discussing the mimicry of pituitary body disorders of certain field defects due to other causes, I pointed out that, while disorders of the hypophysis cannot exactly be accused of simulating in visual interpretation those of infections of the para-nasal sinuses,

with each condition similar or even identical temporal field defects may develop. For example, a young woman, long the subject of frontal-occipital headache of bursting and expanding character, often with nausea, developed pallor of the discs and a central field defect of bitemporal hemianopic character. Prior to the detection of this field distortion, the patient had been subjected to all manner of treatment based on the supposition that the headaches were of gouty, rheumatic, gastrointestinal, etc., character. When the hemianopic scotomatous defects were discovered and the discs began to be pallid, it was believed that the headaches depended upon some basal lesion, perhaps a chiasmal retrobulbar neuritis. X-ray examinations (made at a time when they were not as accurate as they are at present) were practically negative. Alterative treatments, notably mercurials and iodids, were tried, but in vain. The headaches increased in violence and frequency. Finally, after discouraging failure for a long time of remedial measures, the sphenoid sinus was catheterized, and a few drops of pus found. A formal operative procedure was successful in producing a considerable period of relief, although later there were many relapses. Evidently the real cause of this headache was due to a long-time undetected sphenoiditis which caused the chiasmal neuritis, and not to a meningitis which was suspected.

The difficulty which attends the distinction between headaches of dental and of para-nasal sinus origin may be considerable, in spite of the fact that each is supposed to exhibit characteristic features. Thus, a girl of twenty, healthy in all respects save for occasional periods of mild anemia, which yielded readily to hypodermics of iron, became the subject of frequent headaches, usually extending across the forehead in a line with the upper margin of the orbit, and associated with tenderness over the root of the nose. Usually, the head-pain appeared soon after arising in the morning; but also they were invariably excited by exposure to the wind, for instance, during a motor ride. She discovered that if immediately on awakening, having slept lying flat without a pillow, she carefully, but none the less vigorously blew her nose, she could oftentimes avoid the pain. Every sign obviously pointed to the sinuses as the origin of the headache, and

although the usual examinations, including repeated X-ray investigations, were practically negative, repeated courses of non-operative treatment of the naso-pharynx and sinuses were undertaken without good effect. She was an insistent reader and a brilliant student, and hence glasses were ordered which cured entirely what she described as her "eye headache," which differed entirely in its manifestations from the other types of headache from which she sharply differentiated it. X-ray examination revealed a painless upper molar somewhat out of line and tilted inward. Finally, a dental surgeon was induced to straighten this tooth and remove its neighbor, which was infected, in order to give the necessary room. The effect was almost immediately satisfactory, and now more than a year has passed, and the patient has been practically free from headache. Obviously this was a "dental headache," but it is also likely, if not certain, that the transmission of impulse through the trigeminal fibres caused a temporary congestion of the sinus mucons membrane, which added to the difficulty of detecting the real origin of the pain.

It would not be difficult to continue along these lines with records of headaches which, although actually of toxic, that is, of chemical, origin, are ascribed to focal areas of infection, in one notable instance exactly simulating a spheno-ethmoid head-pain, but really due to the influence of coffee, for which the patient possessed a marked idiosyncrasy, but which for a long period, some years, in fact, was unrecognized; of headache due to early arteriosclerosis attributed to nervous exhaustion, *i. e.*, neurasthenia; of headaches associated with cyclic vomiting, credited to auto-intoxication, but actually caused by increased intracranial tension from cerebral tumor; or of headache accounted for by the presence of early nephritis and hypertension, but, as subsequent events proved, occasioned by slowly developing pituitary body disorder. The list is a long one, and in most of the instances the so-called distinctive features of the head pains were those of the influence accused, and not especially those of the actual cause.

It is well known how frequently eye-strain in the widest acceptance of that term determines headaches, usually classified as those of functional origin. Too often in days gone by

they were believed to occupy almost exclusively the frontal area and to be associated with ocular pain, and even in our time this belief is not extinct, when, in point of fact, the eyes are often painless, and these headaches may vary from a moderate frontal distress to violent explosions of pain, and may be localized in any portion of the cranium, and may be associated with nausea and vomiting, and may be "bilious" or migrainal in type. I believe I am correct in stating that eye-strain occupies a prominent, if not the most prominent, position among the mimics, and I further believe that all of us will agree that it creates headaches which so closely resemble those ascribed to other causes, that the incautious examiner may readily go astray.

But this discussion of so-called distinctive features must not be prolonged. Neither time, nor, I suspect, your patience, permits it.

In brief summary, then: With due respect for the value of clinical classifications, distinctive features and favorite sites of the cranial location of headaches, errors of diagnosis are sure to arise if the practitioner is satisfied alone with the information they afford; headaches are accomplished counterfeiters.

Headaches, especially if prolonged, recurring, intractable, demand thorough investigation with the aid of all the methods now so easily at our disposal. The search for, and the correction of, the etiological factors constitute an art and a science. The work must never be sloven, never careless. To fail in this respect is just as reprehensible as would be the administration of wrong doses of a remedial agent, or faults in the technic of a delicate surgical operation. Combined, our efforts may be effective; uncombined, defective. Therapeutic success is what we desire; we shall achieve it in complicated circumstances if we labor, to use Ruskin's oft-quoted words, "in perfect sympathy and uncontenting equity."

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THE OBSTETRICAL FORCEPS OPERATION.*

By DAVID S. HILLIS, M. D., Chicago, Ill.

The forceps operation has the widest field of usefulness of any obstetric operation and there is little question that it is the operation most abused. It has been said that the ob-

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stetric forceps is responsible for a very large part of the work the gynecologist has to do and for the death of many babies. The operation may be a harmless life-saving procedure or it may result in the death of the mother or babe or both. The life and welfare of the patient depends upon the judgment of the attendant nowhere in the whole field of medicine as it does in obstetrics and here there are two patients to be considered. Management of the labor case is the most important thing the attendant has to do and this fact is seldom emphasized. Obstetric strategy is as important to the doctor in charge of a confinement case as is military strategy to an officer in charge of troops in the field. Human life is at stake in each instance; a correct maneuver made at the wrong time, or a wrong maneuver made at any time may bring disaster. In the labor room or on the field of battle the proper strategy indicates to us what to do, when to do it, and how to do it. The doctor who does a forceps operation at the wrong time or attempts to use forceps when some other operation should be done may be compared to the military commander who makes an attack prematurely or sends his men against an impregnable nest of machine guns. With proper management the forceps will be used only at the right time, not too soon and not too late, only when indicated, and in the proper manner; thus they will fulfill their real purpose.

A forceps operation done before the conditions are favorable often results in disaster when the same patient could have been delivered a few hours later without injury to mother or child; or, the other extreme less commonly observed, when, with all conditions present for a safe forceps delivery, the baby is allowed to die when a well-timed simple forceps operation would have saved its life.

The consultant constantly sees cases that have been poorly managed, the obstetric strategy has been faulty, and in many such the serious outcome could have been avoided if the case had been properly managed from the start.

The very nature of labor makes it essentially an emergency condition. The attendant must at all times be prepared to deal with some grave and important complication. He must be able to recognize the complication when present, but most of all he must not allow him-

self to be stampeded into action when no emergency exists. There is constant pressure on the doctor to hurry, and a belief among the patient and her friends that he can safely terminate the case at any time. Moreover, the patient expects that he can do any forceps operation himself and he feels that he will lose caste if he does not. As a matter of fact, a difficult forceps operation is no more justified in unskilled hands than any other major operation would be under similar circumstances, yet many doctors, who would decline to perform a surgical operation of even a minor nature, do not hesitate to use forceps in difficult cases. If the difficult case is recognized as such in advance and properly managed throughout, most of the bad results from forceps operations will be eliminated.

There seems to be a tendency to regard all operations done with the forceps as being much alike. There is as much difference between a low forceps delivery and a difficult high operation as there is between opening a furuncle and doing a resection of the stomach, with about the same difference in risk. The fatalities to mother and child in forceps operations result from a failure to recognize this fact and to distinguish between the operation that can be safely done and the one that carries the high mortality. It may be stated that the operation always offers a certain additional risk for the mother and for the baby, which varies widely with the conditions present; therefore, the reasons for operating in every case must be sufficient to justify the risk, whatever that may be. The conditions must govern the indications; that is, the more difficult the operation, the more urgent must be the reasons for doing it.

With strict attention to asepsis, a doctor, by carefully reading up the anatomy and the method of procedure, can perform most surgical operations without at least a disastrous result, but this is not true of obstetrical surgery.

The operative field in general surgery can be sterilized. It is impossible to sterilize the vagina, while normally the interior of the uterus is sterile in pregnancy. It is impossible to pass anything into the uterus, whether hand, fingers or forceps, without potentially infecting it, and on account of the favorable conditions present, it is an ideal location for the de-

velopment and growth of pathogenic organisms.

There can be no doubt that the forceps operation in itself carries with it a greater risk of material injuries and hemorrhage and an increased danger of death or injury to the baby. Therefore, if we deliver with forceps without a valid reason, and the baby dies, or the mother has hemorrhage or sepsis, we are certainly responsible morally at least for unnecessary damage to our patients.

Assistance with the forceps should be given only in such cases where it is really needed; if there is any doubt about the wisdom of using the instruments they are best not used. In every large clinic cases are frequently admitted for craniotomy after futile attempts at delivery have been made, perhaps for two or more hours; with the baby killed, the chance for successful Cesarean section has been diminished or lost by attempts at delivery. In many cases it is safer to wait than to operate, because it is the exception for Nature to inflict such injuries to mother or child as do the forceps on the high head. There is no hard and fast rule for the use of forceps; each case must be decided on its merits. Not a few failures are due to faulty judgment on the part of the doctor, and more are caused by incorrect diagnosis.

Fatalities to the baby and injuries to the mother are commonly *said* to be unavoidable. In most cases this is not a fact. Such a statement reflects more on the obstetric strategy used in the case than on the anatomy of the patient. The obstetric forceps should be used to deliver a live child; if the child is to be delivered dead, the cranioclast is the instrument of choice.

When the present wave of popular interest in obstetrics reaches a higher point the doctor may be asked: "When did this baby die?" "Why did this patient have sepsis?" "What were your reasons for operation in this case?" With the head bulging, the perineum and the cervix completely dilated, an arrest of progress for one hour might be a valid reason for forceps delivery if other conditions were favorable, but no such reason would justify the operation if the head was at or above the spines and the cervix not completely dilated.

If the indications for forceps are to be gov-

erned by the conditions, we must be able to recognize the conditions.

Obstetric diagnosis is a very much neglected field. The doctor himself is not by any means to blame for this because, on account of its supposed unimportance, the subject has not been given enough attention in the schools and the little learned in the hospital has been forgotten before the average man has acquired enough obstetrical work to keep his hand in. Now that the medical profession is being called upon by the public for better results in obstetrics, the question of obstetric diagnosis has assumed a new importance. Too many doctors depend upon the location of the heart tones to determine on which side the back lies and some do not even attempt to distinguish between the large and small fontanelle or even the location of the sagittal suture. The ischial spines are unknown landmarks to many. To do even the simplest forceps operation with this kind of diagnosis cannot be too strongly condemned. The interne nowadays is instructed never to make a vaginal or rectal examination, even in a non-pregnant patient, without palpating the tips of the ischial spines in order to become familiar with this important landmark in the pelvis.

The doctor who gives careful attention to obstetric diagnosis will observe that some of the methods given in text-books are not as practicable as they might be. He will find that the difference in shape and size of the two fontanelles is often not enough to enable him to tell one from the other but that counting the sutures that run from a fontanelle makes its identity plain. The fontanelles and even the sutures may be obscured by the caput succedaneum; here the hand is passed in posterior to the head and the ear palpated. The location of the ear will indicate the position of the sagittal suture and the flap of the ear as the fingers pass over it will show where the small fontanelle lies. This method should be used in any case where there is doubt of the location of the small fontanelle. He will also agree that the broad smooth surface, that is supposed to indicate the location of the back, is very often hard to identify, but that the location of the anterior shoulder and the cephalic prominence will not only indicate where the back lies but will give a clue as to whether the head

lies anterior or posterior. (Demonstrated on manikin.)

Proper obstetric diagnosis includes frequent observation of the fetal heart tones; especially during the second stage one must know when the baby *begins* to suffer from some complication incident to this period of labor. A short cord around the neck may kill the baby in a few minutes during the expulsive stage and the only way we can avoid this accident is by listening to the baby's heart and doing a rapid extraction before death occurs. (Head stethoscope shown.)

Bad results from forceps operations are most commonly due to one or more of the following causes:

1. Too early operation through a cervix only partly dilated.
2. Attempts to deliver with forceps when the lowest part of the head is above the spines.
3. Failure to make accurate diagnosis of amount of descent and rotation present.
4. Extraction of head with occiput posterior.
5. Unskillful use of forceps, compressor, rotator, lever.

The first prerequisite mentioned in every textbook is that the cervix shall be dilated, meaning, of course, completely dilated, that is, flush with the vagina, and there is no dictum so commonly ignored in all medicine as this and none that should be more accurately complied with. Disregard of this condition results in death of the baby on account of the excess force necessary to pull the head through, the cervix is always lacerated and postpartum hemorrhage and sepsis often follow. It is true that in a few cases a multiparous cervix can be dilated in this way, but the cervix of the primipara will either be torn deeply or prevent the extraction of the head.

Manual dilatation may be used in urgent cases but the cervix is always torn and complete dilatation cannot be secured by this method. If a sufficiently urgent reason for delivery presents itself when the head is low and the cervix more than half dilated, cervical incisions may be made and these should be repaired immediately after delivery. This is a major obstetric operation and should rarely be performed without hospital facilities at hand.

Every effort should be made to secure spontaneous dilatation, and he who applies forceps through a cervix not dilated by uterine action

assumes a real responsibility and needs to have very good reason for so doing.

Between the station of the head that is fixed in the inlet and the head that bulges the perineum lies the field for forceps. This space is divided about midway from top to bottom by an imaginary line drawn from the tip of the spine of the ischium on one side to the corresponding point on the other. This might well be called the dead line because of the high mortality to the baby and danger to mother from the forceps operation done when the lowest part of the head (disregarding the caput) lies at or above that line. The forceps operation on a head so located is a major operation and carries a high mortality even when performed by the expert with all other conditions favorable. In the hands of the inexperienced operator the forceps becomes an instrument of destruction to the baby and of grave peril to the mother. Delay in labor at this point often results from a relative or absolute disproportion between the head and pelvis, or when the sagittal suture lies in the transverse diameter or the small fontanelle is posterior, conditions which in themselves always make doubtful the wisdom of even attempting to deliver with forceps; and the forceps operation with these conditions present should not be undertaken if it can be avoided.

The proper strategy here requires that we accomplish three things before attempting to deliver with forceps: first, to determine whether or not there is bony disproportion; second, to secure dilatation of the cervix; and third, to secure descent and rotation of the head so that its lowest part is below a line drawn between the tips of the ischiatic spines and the small fontanelle as near the front as possible.

We may tell whether the pelvis is large enough to permit the head to pass by the use of a comparatively simple test called the Mueller maneuver. The internal examining finger notes the relation of the lowest part of the head to the tips of the ischial spines while the external hand makes strong pressure on the breech of the baby in the direction of the inlet; if the head moves downward to or below a line drawn between the tips of the ischial spines and comes to a stop gradually against the elastic cervix there is no serious bony disproportion at the inlet. If, however, the head

cannot be impressed to the spines, or if it comes to a stop suddenly, there is a bony obstruction and a forceps on such a head will almost certainly result in disaster. In order to achieve the best success with this maneuver, it should be practiced on every patient examined at or near term or in labor; by doing this the operator acquires experience with the method and will soon establish a normal standard by which the abnormal cases can be judged. (Demonstrated.)

If it is found that the head will go through the pelvis and the cervix is not completely dilated—wait, give morphine: this accomplishes two purposes: rest for the patient and the cervix will dilate more rapidly under its influence; as the cervix dilates, the head will descend, and the result will be either a spontaneous delivery or a forceps operation with the cervix completely dilated and the head below the spines, conditions which make the operation a comparatively safe and easy procedure.

There is a broad and useful field for the forceps operation when the cervix is fully dilated and the head below the spines and rotated at least partly to the front. It is here that signs of exhaustion on the part of the mother or babe may appear and furnish the indication to deliver. Here the forceps may be used to save life. The blades are laid on the sides of the head, there is no resistance from the cervix and a minimum of force is required.

If the head is low and the small fontanelle is in or posterior to the transverse diameter of the pelvis, there will be difficulty with the extraction or the delivery may be impossible. The operation will be rendered safe and easy by rotation of the small fontanelle to the front by hand. This may present some difficulty because the head tends to return to its former position before the blades can be applied. Two methods are used to avoid this. After rotating the head the blade that lies on the side toward which the occiput points is applied first. The assistant holds the head anterior with this blade while the other is laid on and locked.

If this fails, we may rotate the fontanelle to the front and grasp the scalp near it with a heavy volcellum forceps, the assistant gently holds the head in position while the blades are applied, with the fronts pointing toward the

small fontanelle. This can and has been done without injury to the scalp since it requires only a small amount of traction to hold the head anterior after it is rotated. The advantage gained by getting the head anterior in my opinion justifies a slight risk of injury to the scalp.

Rotation of the head to the front in occiput posterior position *with the forceps* is a hazardous procedure in primiparae and in the hands of any but the most expert operator. The dangers from this, the so-called Scanzoni rotation, are: injuries to the bladder, tearing the vaginal walls from their attachments, and deep lacerations.

If the head of the child is movable above the brim of the pelvis, the forceps should never be applied. If the head is fixed in the brim, with the cervix dilated, and cannot be pushed to the spines, and does not after a fair trial mold enough to come through, the forceps are contraindicated.

The forceps should not be used as a compressor, rotator or lever. The only justifiable use of the forceps is that of traction, straight even pull in the direction of least resistance. (Illustrated). If all conditions are right, no more force is required than can be exerted by the biceps and shoulder muscles.

In any forceps operation some compression of the head is unavoidable. This will be reduced to a minimum if the blades lie on the sides of the head instead of obliquely. The fronts of the forceps represented by the concavity of the pelvic curve should point in the direction of the small fontanelle. The handles should never be squeezed together in making traction. And the pull must always be in the direction of least resistance. The lever action is carefully avoided at all times and the head must not be pried out by using the symphysis as a fulcrum.

The objective in every forceps operation is to deliver a live baby with no injury to the mother. The surest way to accomplish this is to do the forceps operation after the head has reached a point below the spines, after the cervix is dilated and after the small fontanelle is rotated enough to the front to permit the blades of the forceps to be applied to the sides of the head.

If the baby is all right and the mother is in good condition, no time or effort should be

spared to secure these conditions before applying the forceps.

The obstetrical forceps is an extremely useful instrument when properly applied but an instrument of quite another kind when used without the utmost care, judgment and precision.

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THE LEGITIMATE BOUNDARIES OF PUBLIC HEALTH ACTIVITIES.*

By ENNION G. WILLIAMS, M. D., Richmond, Va.
State Health Commissioner.

When the State Board of Health was reorganized, those in charge endeavored to limit its activities strictly within the bounds of recognized governmental functions. In all that was planned or undertaken, they kept before them the idea that the work must be carried on for the whole people, or the public, and not for individuals. The viewpoint of the health officer, whose duty is to protect the public, is in marked contrast to that of the practitioner of medicine, whose duty is to the individual. It is also in marked contrast to the charity or welfare worker, who administers to the relief of the individual poor.

As our civilization progresses, there is need and demand for a broadening of governmental functions and, consequently, the boundary lines of those starting out to work from different viewpoints touch and overlap, and there is a natural danger of conflicting efforts.

We are aware of these dangers and realize that we must carefully watch our course and tendencies and frequently recur to first principles.

There are certain activities which are so naturally the result of a constitutional government that no one would question that they are within the legitimate boundary of public health work.

The first of these is the education of the public as to a knowledge of the cause of diseases and methods to prevent them. This should be the preliminary and fundamental duty of a health department until the information becomes common knowledge.

Next is the supervision of such utilities as water supplies and sewage disposal, and the abatement of nuisances dangerous to the public health. Water supply or sewage disposal

even on private property, never affects an individual alone but has its influence always upon more than one person. All of these should come under the supervision of a public health department.

The third definitely public health activity is that for the control of communicable diseases. This includes the collection of reports of cases, aid in diagnosis, epidemiological study of the cases and the institution of measures for control. Whatever is done for the individual case of a communicable disease by the health department is not so much for the individual involved as it is to prevent the spread of the disease from this individual to others. There may be doubt in the minds of some as to how far the public officer should go in some of these activities, particularly in the aid to diagnosis. To aid the doctors in the diagnosis of communicable diseases, the Public Health Laboratory is operated. Such examinations are made there as will aid the doctors in the diagnosis of only communicable diseases. Examinations that benefit the individual alone, such as a urinalysis to detect nephritis or the examination of tissues for malignancy, may with propriety not be made by a public health laboratory. These latter examinations benefit only the individual, as such diseases are not communicable to other people. If such examinations are made at a public laboratory, it should only be justified as a relief measure for those unable to pay.

The public has an interest in the prompt diagnosis of a communicable disease, for it is only after the diagnosis is made that proper preventive measures can be instituted. The public should, therefore, bear the expense of such aid. So far as I know, no one has ever questioned the advisability of the State aiding in the diagnosis of communicable diseases, except in making Wassermann examinations for the diagnosis of syphilis. An objection to this has come to the State Board of Health from the director of a private laboratory. He considers that the Wassermann examination is not a public health measure, his reasons being that syphilis is contagious in the primary stage and that in this stage a Wassermann reaction is usually negative; that, furthermore, a Wassermann is usually positive in the third stage and in this stage it is usually not communicable, although even in this stage it may be com-

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municated to the off-spring. The bacteriologist mentioned above apparently does not object to the State Laboratory making examinations for tuberculosis, diphtheria, typhoid, or any other communicable disease.

It was not until after the war that Wassermann examinations were added to the routine work of the laboratory, and it was then in response to a persistent demand of many practitioners. Its need and popularity are reflected by the rapidly increasing number of examinations made. More than 18,000 Wassermann examinations were made last year, including those for Richmond.

It has seemed to us that as syphilis is a communicable and inherited disease, there is reason for the public to aid in establishing its diagnosis, as well as for other communicable diseases, which are not so prevalent, and which do not add so heavy a burden as this disease puts upon the public through the support of institutions for the insane.

Other States make urinalyses and pathological examinations of tissues, but we have interpreted these examinations as not being within the legitimate boundary of public health activities.

These are mentioned here to bring out discussion, as the State Board of Health does not wish to engage in any activities not approved by the organized medical profession.

If the doctors of the State think that some restriction should be made in these examinations, we should be pleased to have suggestions or recommendations from them.

Another measure in the prevention of communicable diseases is the use of biologics. Formerly the accepted or common measure for the control of these diseases was the enforcement of quarantine. Quarantine is now looked upon as of minor importance, most of the communicable diseases having a specific method of control. For example, the control of diphtheria can best be effected, besides measures of personal hygiene, by the employment of the Schick test to tell which individuals are susceptible and then by giving toxin-antitoxin to the susceptible.

If in former days the public supported quarantine measures, which are relatively ineffective, surely it will support the modern methods which are far more effective in protecting the individuals and the public. The same process

of reasoning justifies the free vaccination against smallpox and typhoid fever as a public health measure.

Furthermore, the free and prompt use of diphtheria antitoxin as a curative measure is also effective in the prevention of the spread of this disease. In consequence thereof, several cities in our State, and a number of States in the Union, give antitoxin free to every citizen, irrespective of the ability of the citizen to pay. Its free and liberal use will not only save life, but will make the patient well more promptly and decrease the danger of the spread to others.

The State Board of Health of Virginia has been unable to secure an appropriation for free antitoxin. The best it has been able to do is to make an arrangement with the manufacturers whereby these products can be sold through the State Board of Health at wholesale prices. We are informed by the manufacturers that, if the State would purchase it outright, it could do so at a cost even lower than the wholesale price, at which it is sold through the State Board of Health.

We believe the State Board of Health is justified in handling biologics—the vaccines and antitoxins, which are used for the prevention and cure of communicable diseases. By doing so the prices of these products have been held down within reach of poor people and a prompt, available supply of high class products has been ensured.

We have not felt justified in handling those products that are used in the treatment of non-communicable diseases, such as insulin and thyroid extracts.

A new field for public health endeavor opened up several years ago when the physical inspection was made of children in several of our Virginia counties. It was found that a large percentage of the children had more or less serious physical defects. These inspections were made just prior to the world war. When the examinations of men during the recruiting revealed a large proportion physically unfit for service, our country was astonished at these revelations, and it was not difficult for the people to believe the report of the defects among the school children.

Hitherto, people had looked upon children as needing the service of a doctor only when they had a pain or were so sick they had to

go to bed. The inspections demonstrated that a large proportion of school children had physical defects that, if not corrected, might handicap a child for life. They needed professional attention, particularly of specialists and dentists. This was a new situation to deal with.

The government, at a time when it needed strong, healthy men for its service, found about thirty per cent so handicapped physically that they could not serve in the fighting forces. Was it not natural that the government should realize that it had a duty and responsibility for the physical condition of the youths of the nation? If it is the proper function of the government to train the youths mentally through the public school system, should it not also be concerned in seeing that the future citizens should be properly looked after physically? This question naturally arose.

Soon after the war, Congress made an appropriation and passed an act to co-operate with the States in looking after the physical welfare of mothers and infants. The States generally have expanded their activities to reach the school children. From an economic standpoint, the government would be justified in looking after the health of those children it endeavors to educate. The child with physical defects is not only more likely to repeat the grades, but also retards other children, and when the physical defects are corrected, the child makes more rapid progress and is less costly to educate.

There is a question as to the extent to which the government should go in looking after the physical condition of children. It can at least see that the environment is what it should be and furnish those that make the inspections, leaving the corrections to the parents or guardians. The correctional work should only be carried on by the government because of the inability of the parents to do so. In the use of the word government, I refer to national, state, or local. I shall not attempt to discuss which of these are responsible for any particular line of work. There should be co-operation or co-ordination between the three.

The question is an open one as to which department of government should assume this line of work. The State Board of Health had interpreted its functions as limited to prevention and viewed its work from the standpoint of the public rather than the individual. Now, here was a line of work that dealt with the in-

dividual. It is of a professional nature. There are more professional men on the State Board of Health and its functions are more professional than that of any other State Board except the Board of Medical Examiners and, therefore, it was considered that the new line of work belonged more to the State Board of Health than to any other, and so we assumed this responsibility. In many localities the inspection and correctional work is carried on through the educational agencies. The question is still an open one.

We realize that in the newer field of health activities it is possible that we may get into the doubtful zones and overstep the legitimate boundaries of public health work. It is manifestly impracticable for a government to undertake generally to correct physical defects. It can, however, assist in supplying the agency to make the inspections to find the defects and assist in arranging for the correction. This newly developed line of health endeavor might be called the clinical field of health work. It is quite distinct from other activities and it will be well to summarize its various features. The State Board of Health in developing these clinics is particularly careful that it has the approval and co-operation of the medical profession, because they do not care to bring upon the health work such condemnation that will react against other endeavors and against which there can be no legitimate objection.

The clinics are divided into three kinds: First, preventive; second, diagnostic; third, treatment.

The preventive clinics are to protect against smallpox, typhoid fever and diphtheria by vaccination and the administration of toxin-antitoxin. The individual usually pays the cost of material used. The services of the health officer or nurse are paid by the community. Surely, no one can reasonably object to a health officer, paid by the people, using his time in protecting people against those diseases which greatly increase the burden of the people by their presence. Such measures against these diseases are far more effective in controlling them than the old method of quarantine.

The second group are diagnostic clinics—tuberculosis and child welfare. The tuberculosis clinic has for its prime object the finding of cases of tuberculosis and placing them under the care of a doctor for their own treatment

and instructing them how to avoid giving the disease to others. These measures must be taken if this disease is to be materially reduced, as every case is a potential source of spread.

In 1924 the tuberculosis clinics were held in forty-seven counties; 6,200 people were examined; 1,100 were found to have tuberculosis; 2,000 had other physical defects; 3,100 were urged to visit their doctors; 2,278 were not under the care of a doctor. Surely doctors could not object to clinics of this kind that put under their care so many new patients. The patients are benefited and the public is protected.

The child and infant welfare clinics are conducted with the help of Federal funds received under the Sheppard-Towner Act. Children and infants are examined. The mothers are given verbal and printed directions for their care. If any physical defects are found, the mothers are urged to take the children to their doctor for cure. Special effort is made to reach the pre-school children in order to have them physically fit before being sent to school. Besides the humanitarian idea, this is economical from the school standpoint, as the child with physical defects is much more expensive to educate.

Third, the curative or treatment clinics hitherto held are dental, tonsil and adenoid, and orthopedic. As soon as school inspection work was begun, the importance of securing the correction of defects was realized. The most common physical defects are dental. The State Board of Health asked the State Dental Association for their co-operation and a plan for having dental defects of children in the rural sections corrected. This was a difficult problem, as there are thirty counties without a dentist and sixty counties averaging one dentist to a county. Dr. Applewhite, former President of the State Association, gave up his practice and for six months made a survey of the situation. A plan was worked out. The Dental Association gave their hearty co-operation. The success of these clinics under their guidance and the administration of Dr. N. Talley Ballou has been remarkable and, so far as I know, the clinics have the approval of all parties concerned. The plan, I understand, has been adopted by other States.

To conduct tonsil and adenoid clinics, we in like manner asked the State Society of Nose

and Throat Specialists to give us a plan as the dentists had done. We started on a plan which, we understood, had their approval, but soon found that it was vigorously opposed by many members of that Society. We, therefore, abandoned it and requested them to give us a plan. They have not done so up to the present time. We have given notice that we do not expect to be responsible for any tonsil and adenoid clinics until we have a plan approved by that Society and also until we have their co-operation. Such clinics as are now held are under the auspices of local physicians and organizations.

The orthopedic clinics are both for diagnosis and treatment. They are now held jointly with the State Bureau of Industrial Rehabilitation and are for adults and children. The plan was worked out following a conference with the ten orthopedic surgeons of the State. The professional services at these clinics are rendered by the ten orthopedists, each having his own district. Some of the patients are treated at the clinics. Those able to pay are referred to their doctor, or are treated privately by an orthopedist. Some need hospital treatment. If they are able to pay, they can go to any hospital they select. If they are unable to pay for hospital care, they will be admitted to one of the State supported teaching hospitals connected with either the University of Virginia or the Medical College of Virginia. The appropriation of \$25,000 made to the State Board of Health for orthopedic cases is spent for the hospitalization of indigent cripples at one or the other of the above mentioned institutions.

During the war the federal, state and local governments assisted in maintaining venereal disease clinics. At present neither the federal government nor the state assists in such clinics, some of which are maintained by certain communities.

In this brief paper, I have endeavored to review some of the more doubtful boundary zones of public health activities. We want always to work with the full approval and in closest co-operation with the organized medical profession. We believe that this profession with its high ideals of service and humanitarianism can be relied upon to safeguard the people. We are always glad to receive from its members constructive criticism and suggestions for our guidance.

DISCUSSION.

Dr. K. D. Graves, Pearisburg: Dr. Williams' paper is of great interest. I have heard of state boards, as well as individuals, being censured for not doing enough work, but it seems that Dr. Williams is on the defensive for doing too much. I must say that, although in a number of lines his department has been splendid and most commendable, I do feel that there is a possibility that it has carried the work in Wassermann tests too far, for this reason: In the private laboratory the only test that the laboratory can support itself from, in my judgment, is the Wassermann test. I do not believe that, with the Wassermans removed from it, the private laboratory can exist. They make the laboratory possible, and it then is able to make other tests, such as tissue examinations, urinalyses, etc. But with the State putting up such a strenuous competition—because that is what it amounts to—a doctor is not going to send the private laboratory a Wassermann and pay five dollars for it if he can send it to the State Laboratory and get it done for nothing. Every time the private laboratory does a Wassermann, it gets it in competition with the State Board of Health. That makes it impossible for the private laboratory to exist. During the past eleven years, so far as I know, only two men in the state have gone into laboratory work for their full time, except to take teaching positions. If the field were made more promising, more men would get into it, and communities in every section of the state would have laboratories. I believe the State should make these tests only on the wards of the State, such as convicts, inmates of jails and detention homes, etc.; or, if it made them on others, should make them only on charity cases; or should charge for those that are not charity cases. It is estimated that the State Laboratory makes 18,000 Wassermann tests a year. The State Bacteriologist told me a year ago that he thought 5,000 of the persons for whom the tests were made were able to pay. That would make the State laboratory virtually self-supporting, and instead of having to appropriate \$25,000 or \$30,000 for the laboratory, that branch would support itself; or, if they did not need the money, it could be used for some other branch of the work, such as the hospitalization of indigent T. B. cases, etc.

Dr. Isaac Pierce, Tazewell: Dr. Williams nor any one else can do health work successfully unless he has the absolute support of the entire medical profession. Even if there is just a small minority opposed to him, he will be handicapped by that much. We must look at this purely from a business standpoint. We can not blame a man with a well-equipped laboratory for objecting. Even though he may not do so publicly, there is a certain reservation when, on the face of the matter, the State is engaging in the same business in which he is engaged. He may say it is all right, but back of that is the thought that it is interfering with his business. So it seems to me there should be no overlapping lines. There always will be, so long as the State is undertaking to do part of this work and the medical profession the other part, a certain amount of pulling back. We are all human, and it cannot be helped. I have always held, and still believe, that the work done by the State Laboratory does more than any other activity engaged in by the State Board of Health to secure the support of the medical profession. I think Dr. Williams is right in asking the co-operation of every medical man in the State to uphold the State Board of Health. I think we should all do it, but, at the same time, I think we

should make a single purpose of it. There is no reason why the State should not lend a helping hand to anyone who has fallen by the wayside. The chief thing today is prevention, and cure is a secondary matter. So long as there are two agencies doing the work, there will be friction. So I am asking in behalf of Dr. Williams that so long as things remain as they are now, uphold and support the State Board of Health.

Dr. Charles Phillips, Richmond: I speak as a full-time pathologist in one of the medical schools of the state. Last year in the pathological laboratories at the Medical College of Virginia we did 6,700 Wassermann examinations, and this number is probably second to that done by the State Laboratory. The financial return from the Wassermans was low, because done largely in teaching hospitals, but if only part of them had brought in five dollars a piece at the prevailing private laboratory rate, you can see how much money we would have had. Formerly, in this city there was money in doing Wassermans, but this is hardly so now, for practically anyone can get it done free, so that part of the legitimate income to private laboratories is disappearing. Personally, I feel that if a patient can afford to pay for medical attention he should do so and that free work should practically only be done for those who cannot pay. Our hospital work is run on that basis. We are not, in the nature of things, either in competition with the private pathologist or the State of Virginia, and so are able to look at both sides of the question. There is no doubt that expansion of activities of the State Board has seriously interfered with private earnings of a group of laboratory specialists and that they have a right to be heard in protest just as the ear, nose and throat specialists have done about State tonsil and adenoid clinics. There is justice on both sides and the solution is not entirely easy. The State Laboratory is run economically and efficiently, I know personally, and I have a high regard for its director, its personnel and the quality of its work, but it seems to me there is fairness in the protest of the private pathologist that the State is destroying his business in this regard.

Dr. J. D. Willis, Roanoke: It is necessary to have maintained about the state thoroughly efficient diagnostic laboratories. If, by reason of the fact that the main support is taken away from the private laboratory, the work of that laboratory is lessened, and the people of the state as a whole will suffer. I think this matter ought to be given considerable thought and be well worked out. There are very few competent tissue pathologists in the state of Virginia. It is absolutely impossible to maintain one in certain sections of the state. With the aid of Wassermann work and other work that is remunerative, it would be possible to maintain tissue pathologists. I believe the basis on which we have been working is wrong, and something should be done to have the tests done in the different communities. I should like to see the private laboratories maintained. I know they are a great convenience to the doctors, and are certainly a great asset to the communities in which they are located. I think private laboratories should be supplied with state funds for public health work done in their locality, or in some other way be given the means to keep going. We need their services in the different sections of the state.

Dr. T. L. Driscoll, Richmond, Va.: I am interested in this question from the fact that I am perhaps one of the largest subscribers to the State Laboratory, due to the fact that I am one of the clinicians for

the City Health Department. The fact that the State Board of Health does without charge, and upon all occasions, a Wassermann, enables the general practitioner, and especially the man in the rural districts, to do a routine Wassermann. The practical side of the thing is this—the State Board of Health can not maintain a laboratory without a certain definite expense. There is no greater expense, in all likelihood, in doing 500 Wassermans than in doing 100 Wassermans. It is an impossibility to be able to differentiate the fine points as to the charity case and the pay case. Certainly in the City of Richmond, I believe, most physicians having pay cases, that is, individuals able to pay \$5 or \$10, send them to the private laboratories. It is no little thing for a person who has little money to pay for Wassermans. In the course of an average case of syphilis there are perhaps a dozen Wassermann tests made. I believe one of the greatest things the State of Virginia is doing today is running a free laboratory.

Dr. Warren T. Vaughan, Richmond: At the last meeting of the American Society of Clinical Pathologists in Philadelphia, the subject of state laboratories and private laboratories was discussed through an entire afternoon. Particularly was the free Wassermann test discussed. No conclusion was reached. The argument on both sides was given just as it has been here. I dare say, nearly every state in the Union provides free Wassermans, and the chances are that even if we felt that this should be discontinued we should not be able to discontinue it, because it has been sanctioned by practically every state. The only type of Wassermann to be objected to is the routine Wassermann. When a man is doing routine Wassermann tests, just as he might do routine blood counts, urinalyses, etc., he should assume the financial responsibility for it. The chief contention that was carried through the meeting to which I have referred was the danger of encroachment on strictly non-public health procedures. Some states—Ohio, I believe, is an example—are doing urinalyses, blood chemistries, and tissue examinations free of charge. I feel with regard to the present situation, and the discussion of Dr. Williams' paper, our attitude could well be that if we co-operate with the State Health Department as well as they have co-operated with us, everyone would be happy.

Dr. ———: This question is largely one of state Wassermann or private Wassermann. I have no criticism at all with reference to the State Health Department; what I have to say is in reference to the general problem. If the state does free Wassermans, it will step into other branches of laboratory work, and many states already have. In the city in which I live the city does free tissue examinations, urinalyses, stool examinations, and what not. This is a question of the relationship of that test and its bearing in the diagnosis of the patient. We have been prone to set laboratory work aside as a separate entity, whereas it is only a means of diagnosis. An isolated laboratory test done by a laboratory that never sees the patient, and that simply reports on that isolated test, is of far less value than one done by someone who knows the patient and knows the other findings and considers the laboratory test in relation to all the other findings. With the laboratory there is always that lack of interest in the individual patient. That, to my mind, is the fundamental difference, and is the main objection against all advanced forms of social medicine. We could carry that principle into all things; into the removal of tonsils and adenoids as

a preventive measure. We could carry it to the establishment of X-ray laboratories all over the state as diagnostic aids, and carry it on until we break down the work of the individual physician. As some of the speakers have already said, the states almost as a unit have adopted it, and certainly it is a hardship on those men who are attempting to build up clinical laboratories, which are of essential importance to the communities in which they exist. From the standpoint of fairness, there seems to be no reason why a patient who is well able to pay should have a Wassermann made and have his tonsils taken out free. To my mind, the financial side is the less important side of it, but the important thing is that, if carried to its logical conclusion, it is going to break down the relationship of the individual patient to his physician.

Dr. J. Bolling Jones, Petersburg: I did not hear Dr. Williams' paper, but, hearing the drift of the discussion, I am here in defence of the work done by the State Board of Health. I do not know anything done in recent years so important as the establishment of free Wassermann tests. I make Wassermans practically routinely; always if a diagnosis is questionable. I suppose I have had as many as 800 or 1,000 done by the State. My Wassermans run around 15 to 20 per cent positive, and I catch a positive Wassermann in many cases where, if I considered the patient's pocketbook, and had to send him to a private laboratory, I would not have had the test made. Right there, too, comes the question, and a delicate one, who is able to pay? And again, is the referring doctor to collect? That means keeping a separate set of books, which is additional burden and annoyance. Right now I owe our city laboratory \$200 for Wassermans, for which I believe I never collected but a very small proportion. To my mind, to stop the State Board from making Wassermans would be a calamity to the state at large.

Mr. A. H. Straus, Director of State Laboratory, Richmond: I feel that this discussion is for the physicians rather than for me as director of the State Laboratory. There are two points of possible misunderstanding, however, that I want to straighten out. I do not believe that twenty-five per cent of the Wassermans we get are from people able to pay. That statement, I think, is a mistake. Likewise, the appropriation, which I understood Dr. Graves to say we get for the Wassermann work, is a little more than we get for all of our work. I only wish we had as much.

It might be interesting to state that, in spite of the fact that the use of the laboratory for Wassermann work is continually increasing, our percentage of positives is holding up. The percentage of positive, by years, is as follows:

Year	1922	1923	1924
Per cent	19.6	17.2	19.2

We are still running approximately twenty per cent positives of all the Wassermans we do. Last year we did approximately 19,000 examinations. This means that there is an enormous amount of syphilis being diagnosed by the State Laboratory. I am perfectly satisfied to leave it to you to decide how many of those 19,000 Wassermann tests would be done if the state did not do them without cost.

Dr. R. A. MARTIN, Petersburg: Reference has been made to the laboratory of the city of Petersburg. For the last six or eight years it has done all sorts of work extraneous to public health work. It sends a letter twice a year to all the physicians, stating that unless they collect for the work no charge is made. This letter distinctly states that unless a

fee has been collected from the patient no charge is made, so Dr. Jones' statement that he owes the city of Petersburg \$200 is in error, unless he has collected that \$200 or part thereof.

Dr. Williams, closing the discussion: I want to thank the gentlemen for this discussion, and to say that we are always glad to have from the individual doctors of the state criticisms of any line of work in which we are engaged. We want to carry on the work as the representatives of the medical profession would have us do. I was very glad to hear such a full discussion of laboratory work, but I could not tell from the discussion how many think we should continue the Wassermann tests and those who do not. I would ask those who think the State Board of Health should continue the Wassermann tests, as heretofore, to hold up their hands, and then those who do not. (Apparently several hundred voted in the affirmative, and only four were counted in the negative).

OBSERVATIONS OF A MEDICAL MAN AMONG THE MALAY TRIBES OF THE SULU ARCHIPELAGO.*

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Any attempt to discourse upon the subject of the physical, social or cultural characteristics of Philippine tribes is very likely to be misunderstood, for the reason that there is, notwithstanding the basic fact of a common Malay origin and kinship, not less than forty distinct tribes, separated one from the other not only by widely differing customs and tribal antipathies common among primitive peoples, but also by the more effective barrier of difference in dialect. Some of these tribes are large, and can boast of a high type of civilization, all of whom are Christians, many of whom have in their veins the blood of other nationalities and are educated, cultured people. Other tribes are small and less developed, and timid. Some dwell upon the broad plains and are agrarian in instinct. Still others live in the mountain fastnesses, and others live and trade much upon the sea. Some tribes are Christian, some Mohammedan, and others pagan. You will understand, therefore, that what applies to one may be totally incorrect for the other.

As one having had opportunity to study many of these interesting ethnologic groups at close range, I have come to have high regard for their many virtues, and I would not do them the injustice to tell you that the social conditions described in this paper are the pitiful conditions of Filipino people generally.

*Read before the fifty-sixth annual meeting of the Medical Society of Virginia, at a public session, October 13, 1925.

There is an old Spanish simile about the weather of Manila, which says of it that there are six months of mud, six months of dust, and six months of both. Concerning the status of civilization of Philippine peoples it might be said, as of the weather, that five million of them are civilized and one million uncivilized, and that two millions of them represent an incomprehensible mixture of both.

This paper concerns itself with the physical and social conditions of one of the most backward and least known tribes of people in the world, inhabiting the jungle of interior Palawan, that far flung and rather lusterless gem of oceanic solitude being the very remotest outpost of American sovereignty in the Pacific ocean. Of this tribe of Batak savages it may be said that they are enthralled by ignorance so dense, and are so devoid of imaginative and creative intellect that they have not evolved anything so high as a fake medicine man.

We make no other claim of merit for this paper than that the facts related are authentic and represent a small contribution to the sum total of our knowledge of the living tribes of mankind. There is nothing in the literature of ethnology or travel describing the peoples of the region visited by the author. The actual number of travelers who have penetrated the jungle of the interior of Palawan, while not actually known, are few, and it will certainly be a long while before the wilderness round about Cleopatra's needle shall be listed in the itineraries of globe-trotting tourists.

The picture we would exhibit for your enlightenment is that of a present-day sociologic phenomenon that, stranger than fiction, is developmentally contemporaneous with the musty facts of archaeology, dating back beyond the horizon of formal history. We found there in the dank and humid primeval forests of this tropic island province a picture of human life as it is still being enacted at the very bottom of the ladder of social development—a tribe of isolated human beings who must be classed as savages, and who yet in this twentieth century, under the government of The United States of America, still take to the forest, having but the crudest implements of wood, roving hunters traversing thicket and hill, wearing the bark of the trees about their loins, eating out of the hand of nature, and living by the hazards of migration and war-

fare—an environment of twelve thousand years ago, a time when your ancestors and mine were shaping similar crude implements from wood and stone at the entrance of solitary caves on the bank of slowly receding post-glacial streams of Europe.

We make use of the word "savage" in its ethnologic sense, with no intention to convey the idea that these people are ferocious cannibals, or that their customs are heinously cruel, or that they are hostile to strangers. Please understand it to imply that they are wild men, timid and afraid; that they recognize neither well defined conceptions of time, space or distance; that they do not understand relative material values, and that they are as yet uninfluenced for good or evil by any form of civilization. Travelers have described more picturesque pagan tribes, peoples more given to heinous forms of deviltry, but one needs to be reminded that organized treachery and systematized cruelty and picturesque customs are in themselves evidences of advanced evolution of social forms, and represent developmental states of mind far in advance of the human individual we here describe.

After more than twenty years of endeavor, unparalleled in the history of colonization schemes, to substitute the light of intelligence for the darkness of ignorance and savagery in these benighted isles, this tribe of Batak Malays are today exactly what they were when the world was young—primitive savages, isolated from the rest of the world, timid to the point of avoiding contact with other bands, exercising hardly any other than creature intelligence born of fear and hunger, into whose lives there has not yet come any knowledge of worlds outside their narrow jungle haunts, much less any conception of science, or art, or government, or the blessings of a religion of hope.

Sociologically and politically the Bataks, of Palawan, are relatively unimportant factors of the Philippine polyglot population, and their habitations are the most inaccessible of all Philippine tribes by virtue of the fact that the province of Palawan is far from the centers of education and commerce, and remote even from the main lines of ocean travel, and comprises more than a hundred islands scattered at wide intervals over an area of twenty thousand square miles of typhoon-swept seas,

and that there is not a mile of trail anywhere deserving the name, and no better means of navigating the seas than mere egg-shell outrigger canoes. Inhabiting these lands are tribes speaking different dialects—very real obstacles, these, in the way of progress and peace now so well established among the larger and more favored tribes of Luzon and Mindanao. In the face of all these hindering circumstances of geography and evolution, however, be it said that there are schools in many parts of Palawan where the rudiments of a common English language and the elementary principles of orderly civilized life are being taught alike to the children of the civilized Filipino and the non-christian, clout-wearing wild men of the hills. The Batak, however, has not shared in these advantages for the reasons mentioned, and because of his primitive aloofness and the migratory nature of his existence. The fact remains, whatever the cause, that to date nothing has been done to lift from this tribe the heavy thralldom of ignorance, poverty and filth, and that they still inhabit the trackless jungle and subsist upon lizards, monkeys, edible roots, creeping vermin and wild honey; that they know nothing of the wonderful possibilities of the soil, and that they are reeking in filth and disease.

It is said they are decreasing in numbers, due no doubt to the fact of being segregated into so many small and unfriendly tribal units, in consequence of which few intermarriages take place. Few children are born, and fewer survive, to these consanguine marriages of individuals of the same closely related band. Judging from the almost complete absence of children in evidence among them, they would seem as having not more than another generation of grace, though very often, as I found out, the absence of children was more apparent than real. Careful scrutiny of the bushes nearby frequently revealed hiding forms of these frightened little creatures who, if you approached them too closely, would go falling over each other in a wild scramble to keep under cover of the brush.

The Batak country is imperfectly defined, though not extensive in area, being that central mountainous portion of the northern half of the province of Palawan, lying back of the coastal civilized settlements of Tinitian, Babuyan and Green Island bay, and being some fifty

miles north of the capital of the province, the old Spanish town of Puerto Princessa. There are no geographical boundaries; it is a land where the rivers and mountains are, for the most part, nameless. The Moro is the only ethnological group, of the non-christian tribes hereabouts, which may be said to have developed tribal consciousness. Pretty generally these backward peoples have not yet come to the point in human development where they may be said to have a conscious pride in a sense of ownership of the hills and valleys over which they roam. They dwell wherever nature's food supply is the most plentiful, and do not establish permanent places of abode. They have only the merest beginning of ideas of government or religious institutions, and there seems neither warp nor woof to their pitiful social fabric, nor any recognizable conscious cohesive influence different from the basic animal instinct of self-preservation. In nothing yet that is definable are they held together in units larger than mere handfuls. Each small settlement seems to be entirely independent of any other, and is, indeed, pretty generally hostile toward other similar small groups of people racially their own kin.

Toward strangers they behave as though obsessed with fears. The white man is still a curiosity to them. Around their night fires they grope imperfectly at vague rumors of men with red faces having fearful weapons, coming from they know not where across the seas in monstrous fire belching ships, speaking in harsh voice, and being rude and powerful, and doing things of fearful aspect. They have heard that in that far-off land of the white man there are houses as high as the tops of the forest. At the conclusion of such a feast of fear the participants would most likely gather up their children and their dogs, their blow-guns and bamboo spears and go a little deeper into the jungle, abandoning their erstwhile places of abode.

These people are, withal, simple minded and distinctly human, and they possess those several homely characteristics that belong by nature to primitive man everywhere irrespective of race or clime. Whenever opportunity permitted us to announce our visits in advance, and we assured them of our friendly intentions, we were almost always met somewhere near that indefinable border of their territory

by several males of the tribe who served us as guides. It would be quite useless to visit their settlements without taking this precaution, as on the unannounced approach of a white stranger they would run away. Such a course, too, would be too severe a trial of their superstitious fears to be risked unnecessarily. By the other and safer method of approach their fears were soon dissipated by frank and kindly overtures of peace, in which some gift was always made a part.

In an experience of more than three years, among some ten or twelve tribes of what are still known as uncivilized people, I found that one particular virtue stood head and shoulders over and above everything else in its persuasive power to win and impress the mind of the primitive savages, namely, plain and simple honesty. Nothing else is so potent to dispel their dire forebodings as honest dealings with them, and by this I mean, more than anything else, just keeping one's word inviolate. They are not traders. They seem not to have ideas of relative values. We made all bargains upon our own terms. At the end of a day's march under a heavy load a man would be quite content and happy to receive as much cooked rice as he could eat, or a handful of blue beads. If, instead, you gave him a silver coin he would be certain to disappear and never return. At the end of two weeks of faithful service, several men had earned two whole bags of clean white rice, which was more than they had ever seen at one time in all their lives. We boated it off to them on the beach. It was night when we left them. Long before morning the news had spread over the traditional grapevine telegraph, and instead of taking the rice home on their backs for another day, the whole tribe with their dogs and hanger-on parientes (friends) of their own and nearby tribes gathered on the beach and devoured what they did not waste.

Here and there along this lonely coast are yet to be seen the slowly crumbling remains of grim reminders of times not very remote when the peoples of these isolated regions suffered terribly from fire, rapine and death at the hands of veritable swarms of Sulu sea pirates. In the early days Jesuit and Franciscan friars visited this coast and set up their altars, and they built strong stone-masonry enclosures, or forts, in nearly all of the larger settlements—

large enough to accommodate the entire population of the parish together with their stores and scanty stock. Frequently in the center of these forts was built a handsome cathedral church. Into these enclosures, at the first warning from the man on the topmost watch-tower, the vigilant friar gathered his flock and barred the doors with heavy timbers. Bloodcurdling stories are told of how very often these became veritable death shambles. The infrequent visitor today needs nothing more than the markings high up on these old ramparts to enable him to visualize the scenes of heroism and valor that took place there. At Dumaran, Taytay, Culion, Cuyo, Iloilo, Zamboanga and Jolo are conspicuous examples of these marvelously well-planned and still well-preserved forts of refuge. The most remarkable of them all, however, is the entire walled city of Manila, with its erstwhile moats and drawbridges and detached bastions and watch-towers, and its separate fort by the broad Pasig River, that knew no defeat until the very hell of Dewey's fleet turned loose its awful fire on that fateful day of May, 1898. These old and now deserted ruins tell a tale of suffering which the timid hill peoples were unable to escape always. It is a fact too well known also that these backward people of the bushes have a great deal to fear in their contact and dealings with their more fortunate Filipino neighbors living in the civilized barriers on the coast, and this very fact is pregnant of a whole world of trouble for an independent Philippines.

It may be said with fairness and truth that the pagan tribes generally have been easy factors to handle by the American authorities—both civil and military. Among them our policies of a square deal have won a harvest of appreciation. My own personal experience with this tribe of Bataks was that very soon they abandoned their worst fears and became friendly and tractable, and showed a willingness for friendly intercourse on the grounds of a strictly square deal. This has been the experience without exception of parties of Americans operating in the localities of primitive peoples all over the Philippine Islands for twenty years. Among groups of these Bataks that at first were the most mistrusting, I have enjoyed the entire freedom of their settlements and their poor makeshift shelters. I would have it known that we never carried fire-arms

among them. Within these miserable shacks I have rested from the withering rays of the tropical sun and squatted cross-legged on the bamboo floor while the curious populace of the bushes sneaked tremblingly in from behind, and up through the floor, and down through the roof—reminding us of the palsied son of Capernaum; and they soon pressed quite close and sat in like fashion about me, though with more grace and I trust more comfort. They came a little too close sometimes for a full olfactory enjoyment. We would almost always have found the shade of the jungle more enjoyable and certainly safer; but prejudicial bars must be let down if you would enter their simple shrines and partake of their friendship, than which there is no other item of equipment more essential to a safe and satisfactory sojourn in their country. They freely exhibited their bows and poison-dipped arrows, their blow-guns, bamboo spears, their beads and bark cloth, and they brought us on palm leaves a wriggling pasty mess of honey comb alive with larval bees, into which like so many monkeys they dipped their dirty fingers and invited me to do likewise. In this dilemma I dipped one finger into the seething mess, with pretense of gusto, but put quite another finger into my mouth. These simple people are possessed of a rudimentary idea of hospitality that is touchingly human and refreshingly free from conventionality—certainly in pleasing relief to their otherwise almost totally unattractive lives.

They exhibited keen interest in such articles as a pocket knife, a policeman's whistle, or a watch. A gold finger ring would, I think, have pleased them best as a gift. To them our long-distant surveying instruments and other scientific instruments must have seemed like devices of diabolical import. With a pocket flashlight every mother's son of them could easily have been chased in mortal fear of its mysterious fire into the bushes. By that little piece of child's play, as old as the hills, of tying the magic knot between my teeth, my reputation as a wonder-worker became immediately established; and when I siphoned water through a small rubber tube up over my shoulder out of my canteen at my side they were ready to a man to fall down and worship. There is nothing in Holy Writ to indicate that the skill of Pharaoh's magicians merited

for those wily old fakirs any stronger bid for divine powers than I might have made, and, indeed did make, for myself. It is, however, very likely that those slippery old heathen of Egypt had a more discriminating and ably analytical audience than of Bataks. We found out, however, that it is difficult, indeed impossible, to live up to and maintain the reputation temporarily begotten of these performances of the mysterious, and that very soon even these seemingly credulous folk were able to gauge our abilities along this line by their true merits. In short, nothing is gained in the employment for any purpose whatsoever of the agency of mystery in any form. Nothing else is quite so certain to reach the heart of the ignorant savage as complete frankness and understandable intercourse with him. He appreciates gifts. To him they imply friendship. Among savages, gifts are very much what they pretend to be, and what they should be. They lay stress upon the substance rather than the form of the giving. The really primitive individual will almost never receive your gifts and subsequently act treacherously with you. This is true of peoples uninfluenced by any form of civilization.

Among themselves as individuals they seemed peaceable and kindly disposed. It is the manner of life for a dozen or more persons, with as many mangy dogs and friendly pigs, to share the scant comfort of a single shelter constructed of poles and grass. They employ precious little to accomplish the sum total of their lives, and left alone—to follow out what seems to be their purposeless existence—they need little more than they already have. They actually seem to want nothing. They accept food. This is the gift they most appreciate, and rice is the one best food. Next, in point of desirability, are beads and brass wire which are used in making the crudest of ornaments for personal adornment. The bolo is an inseparable concomitant of Malay culture that with varying forms is found in use by every known tribe of the Philippines. This tribe of Bataks, and the Manobos, of Mindanao, and the aborigine Negrito widely scattered over the entire archipelago, are the only tribes, I believe, who do not actually make some kind of a bolo. These have not yet borrowed or evolved anything so high in mental development as the intelligence required in the handling of metals.

Among the Bataks I have seen only a few cast-off bolos that were doubtless dearly enough bought from other Filipinos.

Their houses are the poorest, offering nothing but very imperfect shelter from rain and sun. There is no occasion for protection against cold. There is displayed absolutely no conception of the idea of sanitation. In their persons they are cleaner than animals. They have no cooking utensils, and no storage receptacles for food or valuables. Fire is for the most part borrowed and kept alive for long periods. As well as I could gather there are a few old men who know the art of making fire by rubbing sticks of bamboo together in some certain manner until it actually ignites, but this I have never seen accomplished. They know the use of flint stones struck together for spark, which latter is caught in a highly inflammable vegetable substance readily yielding fire. This latter is a fairly common method of fire getting among primitive people generally here and elsewhere. They do not need much fire. Meat is roasted on bamboo spits and eaten without seasoning. A few pieces of broken old earthenware pots which they had probably stolen from the nearby village of Filipinos and of probably Chinese origin were the only cooking vessels that I saw anywhere. They are said to understand the art of cooking rice in joints of bamboo, something which I have seen other primitive people, but never a Batak, do. The floors of their houses, if they deserve to be dignified with any name at all, are laid with small bamboo in the best specimens I saw, several inches apart, so that there are correspondingly large cracks in them. In others not as well constructed, I saw variously sized and shaped forest saplings the size of a large bean pole laid down in similar fashion. All manner of dejecta is disposed of through these cracks in the floor—a most convenient arrangement. Lean and mangy dogs and razor-backed pigs wage incessant scavenger battles underneath, warfare that is some times enlivened by the participation therein of some less fortunate vagabond of the settlement. In this battle of self-preservation waged by this alien trio, it would be hard to discern the fiercest foe or pick the winner in advance of the fact of victory. I have seen a peaceful dinner party set upon by several hungry dogs, having their backs up and their ugly teeth

showing threateningly, with such fierceness that they were only ejected after each scowling canine had gulped down pretty nearly his due portion of the provender, not infrequently taking with each hurried morsel a goodly part of the palm leaf on which it formerly lay spread. Finally, of course, each hound of them were kicked bodily into the bushes, yelping and snarling, but satisfied to have come off with something substantial in their stomachs, and therefore content to while away the remainder of the afternoon in their accustomed and well-earned sleep, and without further worry or molestation. I have frequently witnessed the disgusting scene of babies and puppies quarreling in a woman's arms for the same breast.

Their places of abode are transient, nearly always considerable distance from the settlements of their civilized Filipino neighbors, and always at some isolated unfrequented spot. to find which you will lose the trail many times in the dense jungle, and wade knee-deep through crocodile-infested swamps, and climb up over crags, and balance yourself on the ragged edges of steep cliffs at eminent peril of life and limb. It is a queer, indefinable sensation that accompanies the traveler, alone in this veritable no-man's land, tracking the evasive savage through the tropical forest primeval to his home in the very heart of nature; to find living in these out-of-the-way places, practically unknown to and entirely independent of the rest of the world, human beings as ignorant of themselves as we are of them, the descendants of Adam still covering their loins with the leaves and the bark of the trees; eating contentedly out of the hand of God; taking not into account tomorrow; asking nothing and receiving little; apparently content to live and to die, with what little vision of hope or promise we as yet know too little of them to say.

Physically the Bataks do not run true to any distinct type. Some of them possess the characteristics of the aboriginee Negrito. A Dr. Edwin Y. Miller, writing in the ethnological survey publications of the Bureau of Science, at Manila, P. I., says in his brief description of these people that they—implying all of them—have long kinky hair and thick lips. Quite contrary, some of them are of good physique, with medium heavy, almost

coarse bony frame, with prominent cheek bones and heavy long straight black hair. A considerable number of them, both men and women, show in these physical features a strain of blood that is unrelated to the Negrito. However, as this writer implies, the Negrito characteristic of kinky hair and thick lips and diminutive stocky frame does apply, though in modified form, to a goodly number of Bataks. These modifications are noted in the fact that the Batak's hair, while often kinky, is not the short kinky tuft of the Negrito, but long, coarse, wavy, frizzly hair with marked tendency to stand up on ends; and, further, by the fact that, whereas their lips are thick, they are almost never the vulgar protuding crimson-bordered lips of the Negrito, but of a much more delicate mold. Also, the frame of the Batak possesses distinctly something of grace and proportion that is utterly lacking in the make-up of the Negrito. By reason of their bushy heads and other negroid characteristics, they have been likened unto the Bushmen of Africa. On the other hand, in their Malay characteristics they are said, with as much justification, to resemble the interior tribes of the Malay peninsula. It is but natural to suppose that they are in reality exactly what these attributes of form proclaim them to be—Malay-Negrito mixed breeds.

Many of them crop the hair short over the front half of the crown of the head. Their long kinky hair standing on ends over the occipital portion produces the effect of a particularly ugly sunflower, though now and then you do see an individual having a pleasing facial expression.

Nearly every tribe of wild people concerning whom little is known is sooner or later by somebody said to possess physical freaks. The Batak myth men with shaggy haired bodies remain still a myth.

Their only weapons consist of the bow and arrow, the blow-gun with its poison-dipped darts, and long spears—all made of bamboo. Their enemies are reputed as having profound respect for the blow-gun, wherewithal the Batak shoots, with marvelous accuracy, as I have witnessed, a small poisoned arrow or dart. Unless this little missile pierce the heart or some other vital spot of the anatomy the wound from it would in itself be of little consequence, but the poison is said to be quickly fatal to man

or beast. An animal shot with one of these poisoned arrows quickly succumbs, but it is only necessary to cut out the part immediately surrounding the path traversed by the arrow to render the remainder safe to be roasted and eaten.

The blow-gun consists of two small straight tubes of bamboo of even calibre, laid end to end in bees-wax and embedded in a single larger sized rod of the same material but which has been split to receive the former and again refastened by rattan (bejuco), in such manner that the single barrel of two inner sections is held rigid and straight and air-tight at the joint. The finished gun is about seven feet long, barren of ornamentation usually except perhaps a few rings crudely and imperfectly etched on the sheeny surface of the bamboo, and later stained with some vegetable substance. I could not learn that they ever make any other use of dyes. The dart used in this device is about fifteen inches in length, and about as thick as the slate pencil of our earlier days; its business end is notched and pointed, and its after-end mounted by a truncated cone shaped piece of pulpy wood which fits the barrel of the gun. In use, one end of the gun with arrow inserted is encircled with the thumb and forefinger of the left hand and held tightly against the lips, and the whole thing manouvered into firing position by the right hand. This having been accomplished, the user inflates himself with air to the extent of safety, by expelling which through the gun with sudden and powerful force and guided doubtless by the eyes, the dart is sent at incredible speed and penetrative force. It is not really known to what extent the blow-gun is actually used in offensive or defensive warfare. Nobody investigates squabbles in these interior valleys of Palawan. Internecine warfare is wholesome and necessary to break the monotony of life hereabouts. This tribe has given no trouble to the powers that be, and a policy that is sympathetic and wise will not too actively busy itself with worrying about such matters. No white man has ever been harmed by them. In all likelihood the weapon we have described is used more for shooting monkeys, wild chickens and pigs than anything else. If the reputation for potency attributed to the poison they use on the tips of these small arrows is to be relied upon, and I should believe that it is

fairly well established, then the blow-gun is a weapon much to be respected for its direful potentialities.

The Bataks live close to nature, but precious little do they know or suspect of her boundless treasures. None of her forces have they brought under subjection. They would appear to be entirely lacking in creative intellect. They do not cultivate the soil, and do not accumulate or store food products as against a needy day, and they market nothing that I could learn of except the resin of a certain tree which, I believe, is collected and traded for beads and bolos.

In the matter of dress they emulate right closely the pattern adopted in the garden of Eden, going father Adam one better in the substitution of beaten bark cloth for fig leaves. From bark fiber they obtain by a process of drubbing and pounding a pretty fair substitute for cloth. This coarse material is worn about the loins in what is commonly known as "gee-string" fashion by the males, and by the women as a single encircling girdle in the manner that one might wear a scant bath towel. It is held in place in the latter instance by strips of rattan. This garment, if it deserves any name at all, extends from the lower waist to somewhere above the knees. The process of manufacture of this crude makeshift article is quite simple. The inner tough, white, fibrous portion of the bark of a young bago tree is obtained by stripping and later beaten with a cudgel having a flattened notched surface. The pounding it receives is always between wood surfaces, as stone would destroy the fibrous texture of the finished product. A piece of bark fiber six inches wide as it comes from the tree may be thus treated and stretched to a width of several feet, and, when finished, washed and dried, is a fair substitute, as we have said, for cheap coarse cloth. It never afterwards receives other than its initial washing. A skirt or gee-string is worn continuously without change as long as any significant portion of it holds together, occasionally with reckless abandon of proprieties, of which, be it said in their defense, they are blissfully unconscious.

As in everything else, they employ the simplest and crudest means of personal adornment. The only efforts of this kind I saw consisted of wearing dried grass and flowering twigs in

their hair, or several strands of differently colored beads across the shorn part of the head. They will use only red, blue or black beads. A belle who affected to be quite dainty for our delectation wore rattan armlets, a pair on each arm above the elbows, and held in place by them on each arm was a boquet of flowering weeds, which latter did not display much taste in their selection or arrangement. They sometimes wear large quantities of rattan in long encircling strands wound around their wasits; though never in anything approaching the engaging style affected by other Malay tribes in Borneo and elsewhere. They have attempted nothing in drawing, or carving, or coloring, and if there be creatures or objects of adoration, or any symbols of beliefs they entertain, we failed to discover them.

Their lives are almost entirely devoid of social forms. The marriage ceremony hardly deserves to be called such. The feast idea is embodied in it, but it is almost without ceremony. The prospective bride and groom eat rice from the proverbial palm leaf, and do some exchanging of portions. There is no dolling up for the occasion. The cooked rice is messed up into a round and pastry bolus as large as a hulled walnut in the palm of the hand and rolled and stuffed into the mouth, first with one, and then another with the other hand; all the while the participants are squatting on their haunches, and slapping their sides, and scratching their legs and wiping smeary fingers on that portion of their anatomy most handy—altogether a very convivial affair. There seems not to be anything more to it than feasting together. Another and also unceremonious performance, which I believe is the one more frequently indulged in, consists in the groom's procuring the consent of his damsel, and of the bride's father if they be sticklers of form, and proceeding with her into the virgin forest, symbolical of her virginity let us hope, there to spend a more or less prolonged and doubtless enjoyable honeymoon. Ceremony in either instance is reduced to a minimum, and the entire cost of trousseau, honeymoon and setting up to housekeeping is, figuratively speaking, nothing! Fidelity between husband and wife is said to be the rule. Adultery, I have been informed, is punishable by whipping, provided the offended party is able first to catch the offender, and, secondly, able to administer the

punishment. The theory, it seems, exists in principle. Polygamy and polyandry are said to be common practices, though the charges made were by unreliable Filipinos and I was not able to verify or contradict them.

Their bodies are almost invariably begrimed and unsightly. While not ornamental from the standpoint of art, I have seen wonderful topographic specimens of mixed dermatoses which possessed in pathological interest what they lacked in beauty. I have seen the map of every country on the globe—now also figuratively speaking—and several fancy wall-paper designs all pathologically tattooed upon the surface of a single person, each separate design no doubt representing a different type of skin parasite engaged on the job.

It will be understood that nothing approaching reliable data regarding health or indeed anything else were obtainable. Infantile mortality is shockingly high. As an evidence of the primitive simplicity of the Batak's mental processes, I was unable, through interpreters who at least claimed they understood me, to obtain answers to any questions embodying ideas of a collective nature. I might ask and find out that one person had recently died, but if I asked if many had died, or how many, then my meaning was too obscure. They knew how to follow a trail to the top of a certain mountain which, let us say, we could see, but they could not tell us how far, or by what routes, or if there were impassable rivers. They knew, for instance, that following a certain trail they would fetch up at another certain settlement, but it would take you all day to find out in advance when you would arrive, or how large a settlement, or if the people were friendly. Success and safety among people such as these requires the development of a sixth sense that is alert and penetrating and sensitive to an entirely new lot of impressions.

Life's span with them seems to be short. The older persons we saw could hardly have been fifty, and most likely were nearer forty. That broad plain of usefulness and happy activity that among peoples of the temperate zone lies in between maturity and decline is with them very narrow. They seem neither young or very old. It was quite useless to ask their ages. There is not a Batak in Palawan who has the slightest idea as to how old he is, for they have no knowledge of the annu-

lar cycle. The aged are pitilessly neglected and often abandoned to die miserably. Disease is regarded as of some evil omen. Groups of huts are deserted and sometimes burned when visited by sickness and death.

The impressions that one receives early and that remain most indelibly upon the mind regarding these people is that they are hideous in their filth; that they are outlandishly mangy, and that they are poorly nourished. They are just that. If I were to venture a guess as to their greatest need, it would be *food*. Having seen with my own eyes how inadequately whole tribes of people are actually fed and how pitifully undeveloped in mind and body they are, one comes to have a fine respect for good food. I have seen individuals of these ill-fed and mangy creatures taken out of their unfavorable surroundings and put at hard labor on a regular and balanced ration, with a daily bath and clothing to wear. It requires only these latter conditions and four months of time to produce a new and higher type of man hardly recognizable by his own mother. We are made to wonder, very naturally, what changes would come to a whole people as backward as these Bataks if they could be lifted out of their lethargy and filth and slow starvation and placed in the sunlight! Contemplate, if you can, the accumulative effect of generation after generation of impoverished blood, muscle and bone; the effect of continued ravages by veritable armies of destructive parasites—both external and internal—and then you will be able to visualize that race of degenerates we here so inadequately have described.

The disease entities that are responsible for the greatest amount of sickness and mortality are chronic dysentery, malaria, and a febrile disorder which closely resembles dengue fever, but known in these parts as Pal-a-wa-ne fever. These disorders, under more favorable circumstances, are controllable and curable. As yet, their ravages are unchecked by the benign hand of modern sanitation and medicine, and work havoc among people weakened by anaemia and starvation. Filipinos generally are poorly nourished. Surgeons are well aware of their feeble recuperative powers. They are, therefore, poor surgical risks. They succumb readily to most all devitalizing influences.

There is recognizable on the bodies of easily

two-thirds of all Bataks some parasitic skin affection. These are, as we have already referred to, frequently all mixed up together. It is a most common sight to distinguish three or four forms of parasitic skin disease on the same individual. Favus is frequent. Tinea cruris, often called dhobie itch, becomes a joke, because of its widespread occurrence among all classes, native and foreign. A native without it would be a curiosity. Tinea imbricata is the most widely distributed filth-borne skin affection, and is nearly universal among all of the southern pagan tribes. Their bodies are frequently covered from the hair line to their heels, one complete conglomerate tattoo of unequally concentric rings and whorls of horny scales. I have many times seen adults so thickly covered over with scales that there was not a single square inch of skin surface left unassailed. The discomfiture of these unfortunate souls I respectfully leave to your wildest imagination.

GROSS ENLARGEMENT OF THE VERMIFORM APPENDIX—REPORT OF CASE.*

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In this paper a brief review of tumors of the vermiform appendix will be given, and a report will be made of an appendix, which, although by no means as large as several others reported in the literature, was of unusual size and which at operation presented technical problems of considerable interest.

Tumors of the appendix may be placed in three groups:

1. Cystic enlargements.
2. New growths.
3. Inflammatory tumors.

The first group contains a large number of cases; Hamont and Mathieu¹ found 180 in the literature in 1923. These cysts vary in size from a small marble to great tumors. The two largest recorded were one found by Kelly² at autopsy, which measured 30 c.m. in length and 15 c.m. in circumference, and another removed at operation by Neumann³ which was described as being the size of a man's head. The cause of the great majority of these cysts is obliteration of the lumen of the appendix at or near its base; this obliteration is usually the result of inflammation, and occasionally a new

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growth may block the canal. Rarely the cyst may arise as a new growth from the mucous membrane. As the cyst grows in size, the various layers of the wall of the appendix become much attenuated and may be destroyed. The muscular coat is often replaced by fibrous tissue. The cysts in the early stages of development contain mucus, while those of long standing have a gelatinous material and rarely they contain a thin watery fluid. Graves⁴ reported such a cyst. The proximal 1.5 c.m. of this appendix was a small cord without lumen, while the cyst measured 16.5 c.m. in length and 3.5 c.m. in diameter and was filled with thin clear fluid. Dodge⁵ found in the literature six cysts the contents of which were described as purulent. Dodge also noted from the literature cases in which the cysts were ruptured by gentle manipulation and others which ruptured spontaneously. These resulted in pseudomyxomatous masses or in a pseudomyxomatous condition of the whole peritoneum.

Cyst of the appendix has never been diagnosed prior to operation. The symptoms are usually those of chronic inflammation of the appendix and the signs also those of that disease unless a mass can be felt, in which case it is likely to be diagnosed as some other condition. The operative removal of these cysts is usually not difficult, because the base is obliterated, or very small, and can be treated in the same manner as any appendix stump. There is, therefore, little more risk than in the removal of the ordinary appendix. At times, however, the cyst may so involve the cecum that resection becomes necessary and, if this is done, the gravity of the case becomes greatly increased.

New Growths—Benign tumors are quite rare. Polypi of the mucous membrane have been reported; these tumors are usually small and are discovered only when the appendix is opened. Kelly² cites a case of fibroma of the mesentery of the appendix which so involved the ileum, appendix, and cecum that resection of the bowel was necessary. He also states that myomata and lipomata have been occasionally reported.

Between the benign tumors and the frankly malignant tumors we should consider the spheroidal cell carcinoma. This tumor formerly was regarded as malignant, but in recent

years some doubt has arisen as to its malignancy. Monks⁶ reported a case which he examined five and a half years after operation with no evidence of recurrence. This is typical of the reported cases, for all are said to be cured and almost all after simple appendectomy. No extension of this tumor either in the nearby tissue or in the lymphatics has ever been observed. It would seem, therefore, that there is no clinical evidence of its malignancy. Wohl⁷ believes that it is not malignant but rather the result of an old inflammatory process.

Cancer of undoubted malignancy has been reported fairly often and is usually described as colloid carcinoma. This condition is never diagnosed before operation and, when small, may be overlooked until the appendix is examined in the laboratory. Boyer⁸ says that carcinoma, including the spheroidal cell tumor, is reported as occurring in 0.13 to 0.49 per cent of all appendices. Carcinoma of the appendix occurs in younger people than is usual for cancer, the greatest incidence being in the third decade. The tumors are removed earlier than cancers in other parts of the body, probably, as suggested by Reimann,⁹ due to the fact that the tumor causes an inflammation, and this gives the symptoms which result in early operation.

Sarcoma of the appendix is very rare. Goldstein¹⁰ in 1921 collected sixteen cases and added one of his own. Wohl reported a case in which the appendix was thickened and the induration extended into the cecum. The diagnosis of sarcoma was not made until later by microscopic examination, and the appendix only was removed. There was a recurrence of the growth in a few months and the patient died. He found that only three cases of ten reported at that time (1916) had lived as long as two years.

Inflammatory Tumors—Tuberculosis of the appendix occurs usually in a patient who has tuberculosis of other parts of the body. It may be the only abdominal manifestation of the disease, but not infrequently the cecum is also involved. If the disease is limited to this portion of the intestine, resection of the involved area should be done. The appendices of unusual size, due to the ordinary pyogenic organisms which I have found reported in the literature, have given symptoms that are in

no way unusual for acute or subacute appendicitis. In fact, usually the symptoms and signs have been quite mild. Strong¹¹ reported the case of a man fifty-four years of age whose appendix measured six inches (15 c.m.) in length and two and one-eighth inches (5.3) c.m. in the greatest diameter. The lumen of the appendix was filled with pus; it was described as not cystic, and the microscopic examination showed only an inflammatory reaction.

Howard¹² reported a boy of eighteen who had had repeated attacks of appendicitis. When his appendix was removed, it measured five inches (12.5 c.m.) in length and three and a half inches (8.75 c.m.) about its greatest circumference. The lumen of this appendix was filled with pus and there was no suggestion of cyst or diverticulum.

Jopson¹³ reported an appendix 7.5 c.m. in length and 4 c.m. in diameter, which he removed from a woman fifty-eight years of age. This appendix was located behind the cecum and had no mesentery. The microscopic examination showed acute and chronic inflammation. He suggested that this appendix was a reversion to the type of appendix seen in lower animals.

Packard¹⁴ reported a case of a man fifty-three years of age whose appendix measured 7 c.m. in length and 1.5 c.m. in diameter. It con-

tained two huge concretions and had perforated.

Crouse¹⁵ reported a young man about whose appendix and cecum there was a hard mass mistaken by him for a malignant tumor. He resected the cecum and lower ileum, did an end-to-end suture of the bowel and the patient recovered. The tumor was a mass of inflammatory tissue outside of the appendix.

My case, whose history I will now record, was strikingly like these cases in that nothing unusual was suspected prior to the operation.

The patient, a man twenty-seven years of age, was admitted to Stuart Circle Hospital on December 9, 1924. He had had abdominal pain, located in the right lower quadrant, for three days, but during the day of admission it was more marked. He had slight nausea but no vomiting. The only past trouble of any significance was an illness of two weeks' duration with abdominal pain and diarrhea while in the army six years ago. He had occasionally had mild digestive symptoms. The abdomen was not distended, there was well localized tenderness in the right lower quadrant and rigidity of the right rectus muscle. No mass was felt. The temperature was 100°, pulse 100, leucocyte count 18,000, polynuclears 89 per cent, lymphocytes 11 per cent, and the urinalysis was entirely negative. The diagnosis of

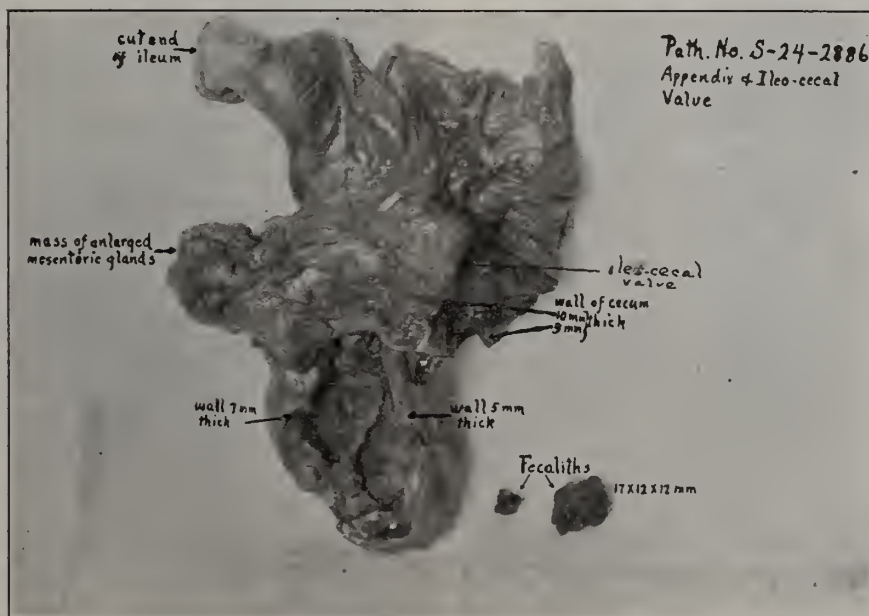


Fig. 1.—Photograph of the gross specimen. The appendix and cecum have been incised and laid open.

acute appendicitis seemed clear and operation was advised and accepted. The McBurney incision was made and an enormous appendix was seen extending downward into the pelvis. The incision was enlarged by cutting the muscles upward and the rectus sheath downward and a large mass was delivered. It consisted of the appendix, to which the terminal ileum was adherent, the cecum and a mass of enlarged lymph glands in the meso-appendix. The appendix was the size of a small banana, measuring four inches (10 c.m.) in length and one and a half inches (3.5 c.m.) in diameter, and the mass of glands was the size of a hen's egg. Other enlarged glands extended upward in the mesentery of the ileum. The tremendously thick wall of the appendix extended into the head of the cecum where the wall including the ileocecal valve was almost a centimeter thick. It was obviously impossible to remove the appendix or to amputate the cecum without endangering the ileocecal connection. From the appearance of the mass and the

lymph glands, it seemed likely that the tumor was a malignant new growth secondarily infected. The acute inflammation was so severe that removal of the appendix was necessary, and it was therefore decided to resect the lower ileum and cecum. The mesentery was severed, removing the glands as far upward as possible, and at points well beyond the inflamed area the bowel was crushed and severed between clamps with the cautery. The method of aseptic suture described by Kerr¹⁶ was used, in which the ends of the severed bowel are turned in by a basting stitch and the closed ends united. The lumen was restored after suturing by removal of the basting stitches. The wound was closed without drainage. The patient had an uninterrupted convalescence. The pathological report by Dr. Charles Phillips is as follows:

"This specimen consisted of a short piece of the ileum entering the ileocecal junction, a short piece of the cecum and a tremendous appendix. All this material was acutely inflamed and the walls were stiff and edematous, except for a healthy margin at



Fig. 2.—X-Ray photograph of the lower ileum and colon after barium meal, two months after operation.



Fig. 3.—X-Ray photograph of the colon after barium enema, two months after operation.

each end of the gut. When cut open a severe acute inflammation was found, the lumen being filled with thick bloody pus. Near the beginning of the appendix there are several fecoliths partially embedded in the mucosa and wall. Two of these are jagged and black and one smaller one has flattened surfaces like a gall-stone. All the mucosal surfaces adjacent are acutely inflamed and the ileum pouts into the cecum with swollen reddened edges. In a piece of attached mesentery there are numerous firm enlarged lymph glands.

"Microscopic Description—The appendiceal wall shows the usual acute inflammatory reaction and in addition in some places a diffuse lymphoid infiltration. In the muscle walls there is in places an intense eosinophilia.

"Pathological Diagnosis—Acute purulent appendicitis with two fecoliths in the lumen. The acute inflammatory process has involved the adjacent cecum and ileum and this is much thickened and infiltrated with inflammatory reaction. The appendix proper is enormous in size compared with the average. The lymph nodes in the mesentery show only an inflammatory reaction."

Two months after operation an X-ray study of the gastro-intestinal tract by barium meal and enema was made by Dr. Fred M. Hodges who reported the whole tract negative. It was particularly interesting that there was no unusual regurgitation from the colon into the small bowel when the enema was injected.

This appendix is remarkable for its size, but it is particularly unusual in the continuation of its greatly thickened wall into the wall of the cecum and the ileocecal valve. It so resembled a new growth that its purely inflammatory nature was certain only after microscopic study.

SUMMARY.

1. The appendiceal tumor of greatest size is the cyst.
2. Benign tumors are very rare. Carcinoma is not infrequent but is either of low grade malignancy or is removed early so that the prognosis is favorable. Sarcoma is rare and the outcome is unfavorable.
3. Inflammatory tumors are unusual; they must be of long standing but do not give unusual symptoms. The case reported is remarkable not only for the size of the appendix, but especially for the involvement of the wall of the cecum and for the large neighboring lymphatic glands.

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OUR LOST PRESTIGE—HOW CAN WE REGAIN IT?*

By J. M. MILLER, M. D., Wytheville, Va.

I believe the fact that the medical profession has lost prestige during the past several years, that we do not occupy the exalted position in the esteem and regard of the public which we formerly did, is readily apparent to all of us who have given the subject any serious thought. We may differ, though, as to what has brought about this change, as well as to the means to be employed by which we may regain what we have lost.

I think we can safely assume that the cause must be sought, either because of some change that has taken place in the profession itself, or in the public so as to affect its attitude towards us, or, possibly, in both. Let us consider the medical profession first. Have we changed in any way, that would lower us in the estimation of the people? Have we retrograded? Certainly, so far as medical qualifications are concerned, we, of today, ought not only to compare favorably with, but should surpass our predecessors, as our opportunities have been far greater than theirs. There is one point though, at which we have fallen down, and continue to fall, and that is

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in the production of all-round general practitioners, the bulwark of our profession. The medical profession can rise no higher in the esteem of the public than does the general practitioner, since it is he who is thrown into close, intimate contact with it, and from whom it will form its opinion of the profession as a whole. He, if the right kind of a man, shares the joys and sorrows of his clientele, is their trusted counsellor in times of stress and trouble, and is one in whom they may safely place the most implicit confidence. Today, however, deceived by a superficial survey of our profession, he misinterprets the true meaning of service and success, and too often sacrifices himself upon the altar of specialization. Many good general practitioners deteriorate into poor specialists. I do not wish, however, to be misunderstood at this point. I have no quarrel whatsoever with the specialists; we need them; but whether or not we need them in the ever-increasing numbers in which they continue to appear, is quite another question.

So much for the change or changes in the profession itself. What of those in the public? Probably there are several of these; but we will consider only two, and one of these is but an outgrowth, a result, of the other. First, we have ceased to be a nation of conservatives, and have become a nation of so-called progressives. We like to be called, and considered, a progressive nation. This is greatly to be desired if we are progressive in the true and literal meaning of this term. There is all to be commended, and nothing to be condemned, in the true progressive. Unfortunately, though, the word progressive has acquired in recent years a meaning quite foreign to its literal interpretation, and is today almost synonymous with the word radical, and all which that implies. The spirit of radicalism is by no means confined to the political world, where it probably originated, but has invaded all walks and avocations of life. It has even entered the sacred calling of the ministry, in which the quarrel between the modernist and the fundamentalist is nothing more nor less than a quarrel between the radical and the conservative. But what has all this to do with the attitude of the public towards us? Simply this. While the medical profession is, and for the most part always has been truly progressive, the public does not

know this, but regards us as ultra-conservative, and the cults as truly progressive. The public knows very little of what we have done, and of what we are striving to do, and we have not tried in the least to enlighten it. Probably no profession has made more rapid advancement in the past fifty years than has ours, yet, the public, with the exception of a very few well-informed persons, remains in total ignorance of this fact. The public does not know that the various cults and pseudo-sciences have nothing in the way of good to offer that we cannot also offer. The public does not know that every successful practitioner of medicine is, to a certain extent, a Christian scientist, and that we made use of mental suggestion for the relief of physical ills long before Mrs. Eddy was born. Take away from Christian science the good resulting from suggestion, and you have taken away from it all that can benefit the sick. Take away from the osteopath the good resulting from massage and manipulation which we have practiced for a long, long time, and what has he left to offer for the relief of sickness? Practically nothing. What of chiropractic? I am convinced that if there is any good in this, it is only through the suggestion made. The reason chiropractors often produce such a profound impression upon their patients, or victims, whichever is the proper term, is because of the forceful manner in which suggestion is conveyed to the receptive center by reason of the painful, brutal, maladjustment of the vertebrae. This so-called treatment leaves its victims so sore, and so full of pains, that when they begin to recover from its effects, they experience so much relief that they are willing to make oath that they are recovering from the primary trouble, if, indeed, they had one. Even Mr. Coue had nothing new to offer. We tried to convince our patients that they were "growing better day by day, in every way," long before we knew there was any such man as Mr. Coue. His formula possesses merit, and is to be commended in many cases where there is hope of ultimate recovery, but it is cruel, almost criminal, to have a patient repeat it day by day, who is growing worse, and who can never be any better. I have told you nothing new of the cults, nothing that you did not already know. But while we realize the truth of all

that has been stated, unfortunately, the public does not.

The second respect in which the public has changed, that affects its attitude towards us, is that we have become a nation of advertisers. We have become accustomed to rely upon advertisements, both in selling and in buying. This is so true that, even we of the medical profession if we have any thing of which we wish to dispose, except our professional services, immediately think of inserting a for sale "Ad" in some periodical. The same is true when we wish to obtain some commodity, and do not know just where to find it—we advertise. What is true of us in this respect is true of the general public also. We, though, of the medical profession, have been taught to shun even the very appearance of advertising, where our professional services are concerned. Not so, however, with our friends of the cults. To them, it is, indeed, the very breath of life. Without its life-giving and sustaining powers, they would soon perish, and be no more. They are advertised in two ways, by themselves and their friends, and by their enemies; and it is a question in my mind as to which is the more effective. By themselves and their friends, their virtues are extolled to the very skies of heaven, their so-called cures made to appear almost miraculous, while the criticism of those opposed to them is made to appear in the light of persecution. Whenever the American people become convinced that any body of men is being persecuted, they become active allies in its behalf.

So much for existing conditions. How can they be relieved? So far as the diminishing supply of general practitioners is concerned, I believe that time itself will eventually solve this problem. The law of supply and demand is inexorable, and will sooner or later compel compliance with its commands. Specialization will probably ere long reach the state of complete saturation, and will refuse longer to smile upon and welcome new arrivals. The sheer force of economic necessity will compel the tide to turn from the overflowing specialties into the field of general practice. The medical schools could do much to balance this unequal distribution of their graduates. They should impress upon their pupils, if service is to be the keynote of their lives, as it should be of all our lives, that

general practice will offer them a far broader field for usefulness than will the specialties.

The measure I shall propose to counteract the effect of the changes that have taken place in the public will probably shock you. You will likely throw up your hands in holy horror, at the mere suggestion of such a thing. Doubtless the shades of our departed predecessors will arise to haunt me, because of this seeming desecration, for the measure proposed is nothing more nor less than advertising. Do not, however, condemn and sentence me without a hearing. I do not mean individual advertising. I do not mean that Dr. A. should advertise to the public, wherein he excels Dr. B. along certain lines, or perhaps all lines of treatment. Nor do I mean that Dr. C. should broadcast to the world wherein Dr. B. is much his inferior. I, perhaps, would be as much opposed to this sort of advertising as would any of you. Probably a better name for what I propose would be a campaign of education, in which the public would be informed regarding our profession. Since the public demands that we be truly progressive, why not convince it that we are, and have always been? I would suggest that a certain number of physicians be selected to prepare articles for publication in the most widely circulated magazines of the country, telling of the advancement we have made, and are making, and, also, either directly or indirectly, whichever may seem the better way, expose quackery and the cults. It is needless to say that these men should be very, very carefully selected, not only as regards their medical qualifications and ability to think clearly, but they should also possess that rare but happy faculty of expressing their thoughts in forceful, pleasing, and convincing language. If we are the custodians of the key to the physical well-being of the people of this country, if we are responsible for their physical fitness, then we should certainly inform them of our ability to serve them, and I know of no way in which the American Medical Association could better serve its members, and at the same time the public as well, than by such a campaign as has been suggested. I can see no valid objections to this plan whatsoever. It may be claimed that the cost would be so great as to make it prohibitive. I am not at all sure but that it could be made an

asset instead of a liability. These articles could be written in such a way, made so interesting and so instructive, that probably the price which they would command, would more than offset the cost of the campaign. But even should this not be the case at the present, the dividends paid in the future, not only to us in the way of increased prestige and remuneration for our services, but to the public as well, in better health and all which that implies, would be enormous. It may be claimed that such a campaign would violate our code of ethics, either in letter or in spirit. I do not think so, but suppose it should, "times change, customs change, and people change," and it is impossible for any mere man, or set of men, to devise and formulate any code that will be applicable in its entirety, to all times and all ages. Is our code any more sacred than that all but inspired document, "The Constitution of the United States?" Yet, it has been found necessary to amend this from time to time, and there is not the slightest doubt but that the same necessity will continue to arise in the future.

EPIDEMIC ENCEPHALITIS.*

By J. K. GRAY, M. D., Marion, Va.

It is an evident fact to all of us assembled here that our country and the world at large has during the past six or seven years passed through a rather strange epidemic, the nature of which has hitherto and is as yet not satisfactorily explained, but whose individual cases we have perhaps all had an opportunity to observe in some form. Doubtless, also, we have each been struck with the varied manifestations of the disease and at times felt somewhat a sense of bewilderment as to diagnosis, inadequacy as to treatment, and utter ignorance as to prognosis and sequelae.

Beginning in a remote corner of southwestern Europe in the year nineteen sixteen, the malady did not make its appearance in the states until late in nineteen eighteen, but from then on through nineteen twenty, and since, there have been hundreds of cases over a wide-spread area throughout this country and Europe. No doubt there have been other epidemics of like nature but we are unable accurately to determine them for lack of clinical information.

As to prevalence and infectiousness, it appears that individual susceptibility plays the greater part since cases have been recorded in whom the mode of acquiring the infection was unknown, while, on the other hand, the greater majority have escaped who would otherwise have succumbed had it been any one of the more common contagious diseases.

While the epidemic seems to have spent its force several years ago there are still a few sporadic cases appearing, so that we must still be on the alert for their early recognition. Occurring at about the same time as the epidemics of influenza and poliomyelitis, it would appear that there was some connection between them, but investigation and records of cases have not borne out this assumption and we have not as yet discovered the predisposing factor. Neither has the inciting agent yet been isolated with absolute certainty, but much work has been done which would indicate that the symptoms are produced through the action of a filterable virus whereby the disease may with difficulty be reproduced in monkeys but more easily in rabbits. The bacteriologic and immunologic work along this line has for the most part been unsatisfactory and there is a great deal of difference of opinion as to the interpretation of the results obtained.

The changes taking place in the tissues are definite in character and fairly constant in location, consisting in a perivascular infiltration throughout the entire cerebral cortex and with the most marked involvement in the nuclei at the base of the brain where the pathologic changes are of a gross nature. As far as can be determined by the data collected, the age of the individual attacked varies within wide limits from early childhood to old age, with the most cases occurring in young adults. In the earlier stages, as in all other acute diseases, the diagnosis is more difficult, at which time, of course, general symptoms predominate, later on giving place to localizing signs. The prevailing type in this country has been the lethargic form, which gave rise to the disease at first being called sleeping sickness, which, however, is a misnomer as there is a large percentage of cases in which the opposite trend in the symptoms occurs, producing the hyperkinetic type in which the lethargic process is reversed and we have,

*Read before the Southwestern Virginia Medical Society, at Mountain Lake, Va., August 27-28, 1925.

instead, excitement, delirium, trembling, choreic movements, and transient paralyses. In this latter type the prognosis is more grave and the mortality higher. The most constant sign that has been noted is diplopia, which may be with or without nystagmus, there being only a very small percentage of cases which do not exhibit this sign and more especially so in the earlier stages of the disease. Varying degrees of ophthalmoplegia are noted in all severe cases.

Lumbar puncture, being a safe procedure, should always be performed, and though there is no characteristic change in the cytologic content, it is a valuable aid in the differential diagnosis by the process of elimination and distinction from acute diseases in which meningism occurs with symptoms referable to the central nervous system but with no inflammatory process there present. The fluid is clear and increased in amount but there is no pronounced increase in pressure as in the more common meningeal involvements. A distinct increase in the glucose content has been maintained by some to be a constant finding, but there is still some difference of opinion on this point.

The clinical course in this disease, as before stated, varies a great deal with the individual. There are, of course, some in whom a psychosis is suspected, but true psychoses are rare. Acute psychoses arising at the height of the process are of toxic origin and offer a good prognosis. The danger of accident or suicide is, of course, present, and the proper precautions should always be taken to prevent such.

The gravest contingencies that arise and the most frequent causes of death are lobar pneumonia and respiratory paralysis due to involvement of the bulb. In a few cases of the hyperkinetic type also there may ensue repeated convulsions, causing death. Excepting the so-called abortive cases, the acute course is apt to be prolonged over several weeks and the symptoms of lethargy, while prominent in most cases, may be replaced by a persistent insomnia in others and in the majority of cases is present in the latter part of the illness.

In probably none of the epidemic diseases which have swept over the country in recent years have the sequelae been more varied and lasting than in epidemic encephalitis, and it

is this feature which has stimulated a great deal of interest and led to the production of a large amount of literature.

The Parkinsonian syndrome appears to be a distinct entity and may be explained upon the basis of the diffuse infiltration and exudative process which takes place, thus leading to the formation of scar tissue and the attendant interference with the projection fiber system and causing a great variety of ataxias and spasticities. While true psychoses are rare, nevertheless there are mental symptoms present in practically every case at some time during the course of the disease. Following recovery from the acute stage, there is often a long period in which the patient is unstable mentally, and some of these cases are indeed so severe and protracted as to require care in a hospital for the insane.

As the epidemic has not been very severe in this part of the country, we have had very few admitted for this reason. We have at this time two cases under care which are apparently chronic sequelae of epidemic encephalitis. In one case the symptoms resembling chorea developed following an acute attack of the disease while in France, and since that time has shown no improvement but only temporary periods in which there is an amelioration of the symptoms. The patient, although ambulant, is in a constant state of motion, which is of the varied, poorly co-ordinated and purposeless character seen in true chorea. The speech, locomotion, station, expression and general behavior are characterized by tics and purposeless jerky movements. He has also experienced several generalized convulsions, but none have occurred lately. The patient is totally incapacitated physically and, although not actually insane, is in a continued state of mild agitation and lacks the power of concentrating his thoughts on any particular subject for any length of time.

Another case now under observation passed through the acute stage some nine months ago and has since that time been in a continuous state of weakness so pronounced that he is hardly able to walk around, not because of actual muscular asthenia, but more so from the total lack of nervous energy. He is in a good state of nutrition and has no organic or neurological defects, but suffers from a per-

sistent insomnia and a neurasthenia major which entirely incapacitates him.

Still another case of encephalitis residue, which was negative by the Wassermann reaction, presented most of the symptoms of syphilis of the central nerve system. The history was of a previous attack of encephalitis several months before entering the hospital where the whole course of his progress was downward, death following after a series of convulsions.

We have been handicapped in not being able to observe the above-mentioned cases in the acute stage, but the residual effects, as observed in a state hospital, have been as striking as they have been varied.

In conclusion, we may state that encephalitis, whether of lethargic or other type, is a disease of which a great deal is yet to be learned and concerning which the prognosis should be well guarded. Whether patients attacked by it ever recover entirely is a doubtful question, and it would probably be safer to regard each case as being one of a chronic disease with an acute onset and early course, later developing into a subacute and, finally, into a chronic phase.

THE CORRECTION OF NASAL DEFORMITIES BY THE EXTERNAL ROUTE.*

By ELBYRNE G. GILL, M. D., F. A. C. S., Roanoke, Va.

It is my purpose in this paper to describe an operative process which gives relief for the hump, deflected nose, and depression of the nasal bridge and columella. The technique which I describe is one that has been devised by Gillies, of London, and elaborated upon by Dr. J. Eastman Sheehan, of New York.

We will first discuss the cases in which there is a depression of the nasal bridge and columella.

Supporting Structures. Various substances have been devised and used to build up the missing parts, such as paraffin, gutta serena and other foreign substances, but recognized plastic surgeons have given up their use. Chondral cartilage is best suited for this particular work. The cartilage is secured from the costal cartilage of the eighth or ninth ribs. The cartilage can be easily shaped to any desired pattern and has the power to combat

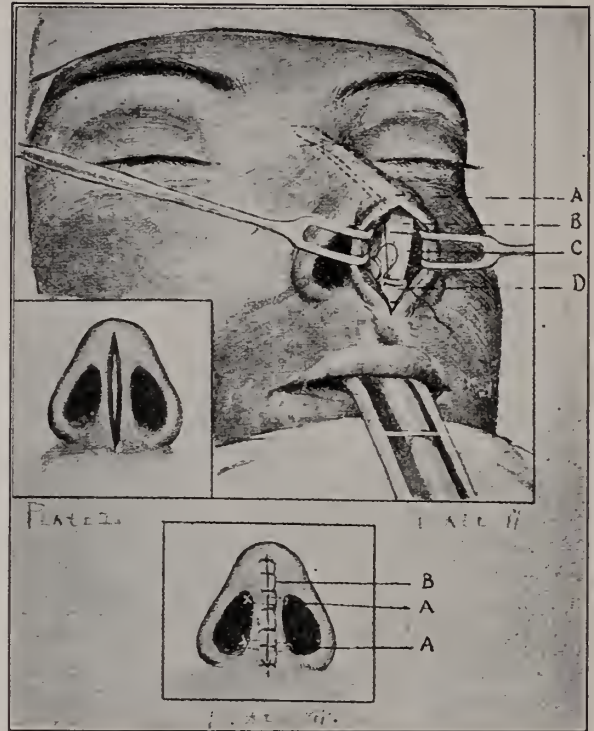


PLATE I, II, AND III.

Columella incision, exposing the cartilage of the septum.

- A. The long leg of the graft.
- B. Perichondrium intact for the purpose of holding the long and short legs of the graft together.
- C. Short leg of graft to support the columella.
- D. Perichondrium intact with a small Lane intestinal needle passing through the loose tissue of the philtrum and perichondrium, for the purpose of securely anchoring the short leg of the graft to the deep area of the upper part of the philtrum.

A and A. Mattress sutures.
B. Continuous lock stitch of horse hair.

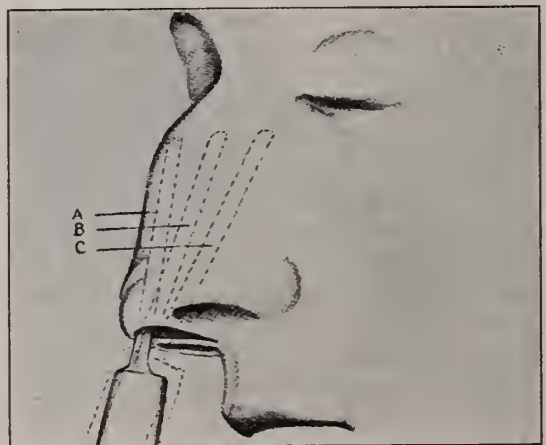


PLATE IV.

A, B and C. Showing method of freeing tissue of nose in case of hump.

infection. When it takes, it remains as transplanted and is not absorbed. This has been proven by the experimental work of Staige

*Read at the meeting of the Southwestern Virginia Medical Society, at Mountain Lake, August 27 and 28, 1925.

Davis, of Baltimore, and also by the work of Killner and Gillies, of Britain.

It is always desirable to remove more cartilage than is needed. This is done to insure ample supply in case of accident or infection. The excess cartilage can be buried beneath the skin of the chest without fear of being absorbed or causing any irritation.

The above mentioned plastic surgeons have shown that foreign substances should never be used as a means of support for, as a rule, they generally act as irritants to the tissue, sooner or later giving trouble by abscess formation, gangrene, atrophy of the skin and, finally, expulsion.

lip and chin, are washed with green soap, and then followed with alcohol. The airway, on both sides, is packed with dry sterile gauze. With a small sharp scalpel a vertical incision is cleanly made through the center of the columella, extending from the under surface of the tip of the nose down to the philtrum. The incision is now deepened throughout its full length until one reaches the vertical edge of the septal cartilage. The septum on both sides is then exposed for a short distance. The loose tissue of the nose is now separated on each side of the nasal bridge up to the infra-glabella region. A bed is now made for the reception of the graft.

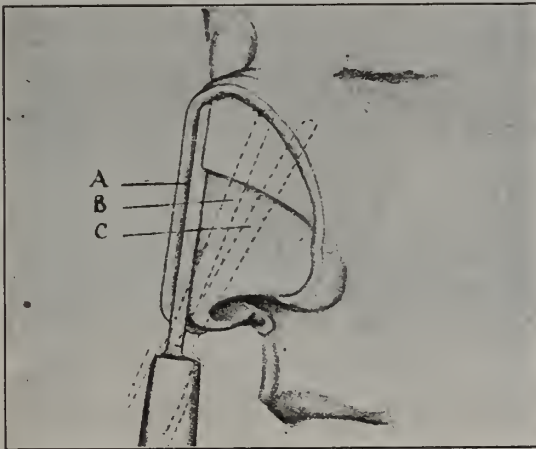


PLATE V.

A. Incising Periosteum. B. Separating mucous membrane. C. Separating periosteum.

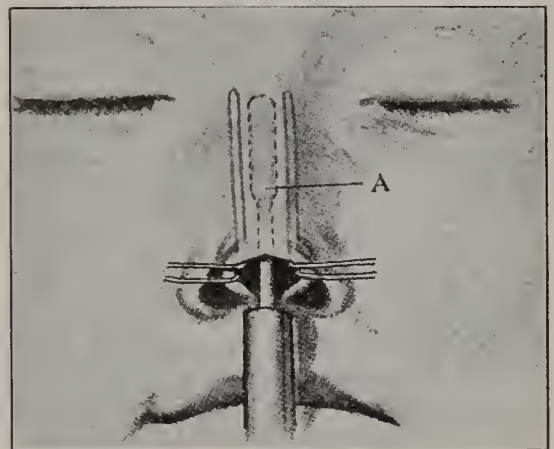


PLATE VII.

A. Polishing bone with a fine Joseph's rasp.

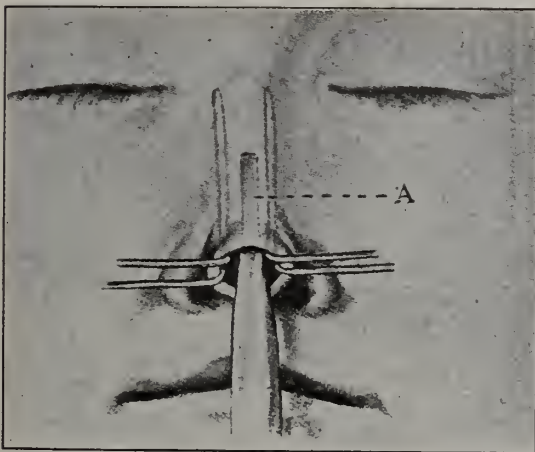


PLATE VI.

A. Chiseling of the nasal hump.

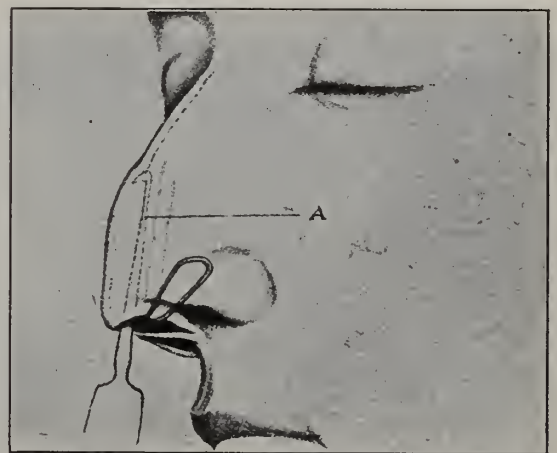


PLATE VIII.

A. Removing cartilaginous part of hump.

Anesthesia. Local anesthesia is the one of choice. We use 1 per cent novocain.

Preparation of the Patient. The entire face,

Preparation of the Cartilage Graft. After the cartilage has been removed from the right chest wall, it is either wrapped in dry sterile gauze or placed in saline solution. The dis-

tance from the infra-glabella region to the nasal tip is accurately measured, and then measured again from the tip of the nose to the deep tissue of the upper part of the philtrum. This gives one the exact length of the cartilage needed. The width of the cartilage required is also noted. A triangular piece of

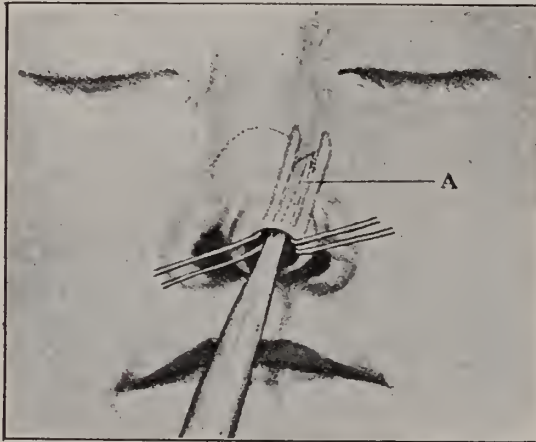


PLATE IX.

A. Using special chisel for the removal of the nasal bone or the nasal process of the maxilla.

cartilage is excised at its proximal end, for the purpose of bending to a right angle, after the graft is shaped to the desired pattern; the perichondrium over the long leg of the graft is removed, except over the angulation, the object being to hold the long and short legs of the graft together. The perichondrium is

now removed over the short leg of the transplant, except at its far end. This is allowed to flare out from either side, in order to hold the short end of the angulated transplant firmly in place, by suturing it to the deep tissue of the upper part of the philtrum, thus preventing tension from the sutured columella and a later flaring out of the grafted area.



Case 1.—Before and after operation.

Patient, A. C., age 23, male, consulted me March 1, 1924 giving the following history: At the age of 10 years, while sleigh riding, had his nose broken, which resulted in a hump nose and a flattening of the nasal septum and complete occlusion of the air passages. March 16, 1925, I operated upon this patient. Anesthesia one per cent novocain. I performed a submucous resection and removal of the nasal hump, using the technique as described.



Case 2.—Profile and front view, before and after operation.

Patient, E. K., age 14 years, at the age of three years fell lateral deviation and a flattening of the nasal septum. June 16, 1925, I operated upon this patient, using local anesthesia, one per cent novocain. I first performed a submucous resection,

and broke her nose. This accident resulted in a hump nose, 16, 1925, I operated upon this patient, using local anesthesia, then removed nasal hump and corrected lateral deviation.

The raw surfaces are now carefully and accurately brought together with a mattress suture, of braided silk. No bandaging is necessary, as a rule. The sutures are removed on the fourth day and there is very little, if any, scarring.

Hump and Deflected Nose. The same incision is made in the columella as the one just described, but it is not necessary in every case to extend the incision to the deep tissue of the philtrum. The loose tissue of the nose is separated as before, on each side. An incision is then made through the periosteum parallel to the nasal bridge. A septal elevator separates the periosteum from either side of the nasal bones. The bony hump can either be removed by the use of a rasp or a chisel. We have found the rasp a more desirable instrument to use. Pressure is applied on each side of the nose for forty-eight hours. The columella incision is closed by mattress sutures of braided silk.

For the correction of the deflected nasal bones, bridges, and thickness of the nasal process of the maxilla, the same initial incision is utilized, and the loose tissue of the nose and the periosteum is separated in the same manner as for the hump nose. Here, again, you can either use the chisel or the rasp. Whether one or the other method is used, it is left to the judgment of the operator.

The photographs showing the technique of this operation are taken from an article by J. Eastman Sheehan, in the *Laryngoscope*, September, 1922.

TREATMENT OF LACERATED WOUNDS OF THE EXTREMITIES.*

By A. M. SHOWALTER, M. D., F. A. C. S.,
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New Altamont Hospital, Inc.

In selecting the above subject for discussion on this occasion, I have been prompted to do so for the reason that, in my own opinion, based upon personal experience and observation of other clinics, the majority of surgeons are, as a rule, rather too radical in their treatment of wounds of this type and tend to lose sight of the fact that a goodly majority of the results that we get in surgery of this type is dependent upon the individual resourcefulness of the patient. In other

words, I think a good many unnecessary fingers and toes are amputated and, perhaps, feet, legs, arms and hands, which might be saved by a little time, patience, and careful observation in handling of the wound.

I realize, from a cosmetic standpoint, it is rather interesting to take a finger, for instance, which is badly lacerated and, perhaps, crushed in a number of places, amputate it, and leave a beautiful stump which will heal over in a short time; the end results of the operation apparently look good, as compared with a long, tedious procedure of carefully putting back in place torn fragments, dressing and tedious watching, when it may take weeks longer to heal. But in the long run, if any portion of the digit, as above-mentioned, can be saved, does it not justify our time and the expense to the patient to save the finger, toe, hand or foot if we can? I realize, when it comes to dealing with the larger parts of the extremities, my remarks will have little of importance, and it is my intention to deal chiefly with the fingers and toes.

A good many years ago, I remember reading an article by some one whose name I do not now remember, entitled, "A Plea for the Saving of Lacerated Fingers." I was so impressed by the discussion of the subject that since that time I have repeatedly patched up injured extremities and saved a number of fingers and toes which otherwise I would have amputated, had it not been for the impression this left on my mind at the time. And unless a person is given considerable opportunity to see just what so-called "nature" will do toward repairing the damage to the digit, it is hard to realize what results one may get. The types of wounds I refer to above are those in which the hand, or foot, especially fingers and toes, have come in contact with some high powered machine, and are badly torn, including also fractures generally of a compound and multiple nature. Take, for example, a hand with all of the fingers literally cut into a pulp, the skin only left in small fragments, and the phalangeal bones cut into several sections, tendons badly injured, and complete loss of function so that the fingers hang limply from the extended hand as though they were useless. By carefully approximating the torn and cut fragments, putting the hand up in extension, and forming the outline for the

*Read before the Southwestern Virginia Medical Society, at Mountain Lake, Va., August 27-28, 1925.

digits, it is rather remarkable to watch what will occur in a great many of these cases. In the event our judgment may be wrong, and it is necessary to amputate one or more of these digits, this can easily be done under local anesthesia at a subsequent date, as I have had occasion to do several times in the past from a vocational or individual viewpoint.

TREATMENT

For convenience, we may divide the treatment into, first, mechanical; and, second, medical (antiseptics and antitoxin). From a mechanical standpoint, the first thing to do, of course, is as nearly as possible to approximate and anchor in place by sutures all of the torn fragments, so as to give the particular part of the digit injured the best anatomical form practicable, and follow up by careful dressings and splints, if necessary. The medical treatment should consist of local applications of antiseptics, tincture of iodine being the generally accepted antiseptic; this, however, should never be used for more than the initial treatment, to be followed by moist, warm salt water applications at intervals of twelve to twenty-four hours for periods of twenty to thirty minutes, if the injury is such as to necessitate a treatment of this kind. A prophylactic dose of tetanus antitoxin given immediately after the accident should be a routine measure in my opinion in all cases where the wound opens up any extensive field for infection. Very often the results of the treatment may not look satisfactory for several weeks following an injury, but firm dressings, even though some local infection is present, and bathing in warm salt water once or twice a day will accomplish a great deal towards restoring a badly injured digit to a more or less normal functioning activity.

In reviewing our experiences, no doubt all of us can recall many interesting experiences in which we, perhaps, have been somewhat in doubt, and certainly other members of our profession may disagree with us in the propriety of leaving on a badly lacerated finger or toe, but I have in mind one case which is of particular significance and tends to demonstrate to my mind how we may often-times be fooled in our judgment as to what may be accomplished along this line.

A few years ago I was called to see a patient some fifteen miles in the country, and,

on arrival, found that a boy, seven years of age, while playing with a lawn mower, had the misfortune to get one of his thumbs, which one I do not recall now, tangled up with the lawn mower while running down hill. He recovered himself to find the end of the thumb gone, midway between the base of the thumb nail and the last phalangeal joint. After running in the house and informing his mother, a careful search was made for the missing end of the thumb, which was found in the grass out in the yard. On account of the delay in getting the message, it was two and one-half hours after the accident before I arrived on the scene. Being an only child, you may picture to yourself the loving mother's chagrin and disappointment to see her only son maimed in this way; so, with tears in her eyes, she begged me to put the injured thumb back in place and save it. Of course, I had little to offer her in the way of a favorable prognosis, but, at her earnest solicitations, and not, I am frank to say, because of my own surgical judgment, I agreed to make the attempt. I immersed the end of the thumb, carefully wrapped in sterile gauze, in warm salt water solution, keeping the container in a basin of hot water to keep it at an even temperature while I sterilized the instruments preparatory to doing the operation. To make a long story short, I carefully stitched the fragment in place, supporting it in position with sterile gauze and adhesive plaster, reinforcing this with a larger dressing, and instructed them to soak the thumb in warm salt water for twenty or thirty minutes every eight hours. For a while the end of the thumb lost its color and complexion, and it was weeks before I thought we would get any results at all, and even six or eight weeks after the accident I was practically convinced that we would save only a portion of the extremity. When the patient was taken to his home in Philadelphia and the surgeon there was called in to look after the case, he insisted on removing that part of the finger, as he deemed it impractical to leave it on. The family refused to have this done, and I regret that I can not have this patient with me today to demonstrate to you the end result of this little experience. However, describing the condition, he has a thumb on this hand which is perhaps not over one-eighth of an inch shorter than

the other; he also has a well-formed thumb-nail, with the exception of the fact the tip is somewhat tucked in, and, furthermore, he has a perfectly flexible joint.

By way of summary, I wish to state, in concluding, first, we should be careful to cleanse the wounds and give attention to the mechanical dressings of same; second, local antiseptics and antitoxin should be used. We should not remove any digit which has even a fragment of tissue left to hold it in place, no matter how badly lacerated. And, finally, do not hesitate to sew back in place fingers and toes when they are entirely gone, with the assurance that you will get enough results from this line of treatment to more than justify the experience.

POTTER'S VERSION AND ITS POSSIBILITIES.*

By J. M. ROPP, M. D., Roanoke, Va.

In an obstetrical experience in connection with the general practice of medicine covering a period of more than thirty years—which has been comparatively extensive—during which time I have delivered women under practically every imaginable condition, and at the same time have come in contact with almost every conceivable obstetrical complication and emergency. I am frank to admit that the one thing that has impressed me the most profoundly, and at the same time weighed upon me the most heavily, has been the heart-rending suffering incident to child bearing and the little that has been accomplished in its relief.

Many times have I asked myself the question, why should this, the crowning and most glorious event in every mother's life be purchased at the price of such anguish, and at the same time be surrounded by such dangers and pitfalls? And why should the dread of childbirth, like a veritable sword of Damocles, hang suspended over the head of every civilized woman?

The fact that little had been done until comparatively recent times to meet the long and persistent demand of the parturient woman for relief or mitigation of her suffering was not alone due to the lack of interest on the part of the profession, or the entire absence of means to this end, but largely due to the attitude of the clergy and laity, both of which bitterly

denounced and condemned every effort along this line as being in violation of the divine command, "In sorrow shalt thou bring forth," many of whom to this day believe in following literally this injunction.

This demand has increased and kept pace with the progress of civilization, and human enlightenment until at the present time practically every intelligent woman demands that something be done for her in her hour of travail. Obstetricians generally have been gradually awakened to the righteousness of her cause and the justice of her demands, and the necessity of meeting them in some way. This is clearly shown by the many procedures brought forward and advocated for this purpose from time to time.

It is not within the province of this paper to discuss or even mention the various methods or procedures, most of which have fallen far short of their aims or expectations, and have proven but "dead sea fruit" in the hands of those that used them.

The first great step forward in this direction was made when Sir James Simpson on January 9, 1847, did the first obstetrical operation on record under a general anaesthetic, using ether and doing a version and breech extraction. In November of the same year, he discovered the anaesthetic properties of chloroform, and used it to the exclusion of ether, and strongly advocated its general use. This raised a terrific storm, not only within the ranks of the profession, but both clergy and laity bitterly assailed its use. However, after Queen Victoria was delivered by Simpson in 1853 and 1857 under chloroform in two of her confinements, the storm gradually abated and its use spread rapidly, until now chloroform or ether are used in practically every confinement, attended by any one competent to use them.

No storm in the obstetrical world since that raised against the use of chloroform in labor by Simpson has ever surpassed or even approached it in its violence, unless it was the storm precipitated by Irving W. Potter, of Buffalo, N. Y., when he read his first paper on elective podalic version during September, 1915, at Indianapolis, Ind., before the American Association of Obstetricians and Gynaecologists, and advocated its use for the sole purpose of eliminating the second stage of labor.

This paper was bitterly criticized and the

*Read before the Southwestern Virginia Medical Society, at Mountain Lake, Va., August 27-28, 1925.

principle advocated considered so revolutionary and dangerous that the executive committee refused to have them published in the transactions of the society, and it was with great difficulty that the members were restrained from expelling him from the society. Many not only thought him unscientific but dishonest.

In 1916 Potter reported an additional 200 cases before the same society, but there was no apparent change in the sentiment and there was no evidence whatever that the storm of the preceding year had abated in the least. In September, 1920, at Atlantic City, Potter presented a third paper on the same subject and before the same society. In this paper he reported that during the past year he had personally delivered 1,113 women, 920 of these being done by version, with a combined natal and neonatal mortality of 6.7 per cent. This paper was discussed at length by such men as Barton Cook Hirst, McPherson, James A. Harrar, E. P. Davis, E. G. Zinke, and a number of others of equal prominence. The reception of this paper and the lengthy discussion following it was remarkable for the great change in sentiment. So great was the change that Potter, in closing the discussion, remarked that he was greatly gratified and pleased, and especially so with one member in particular, as, when he presented his first paper, he (Zinke) was so worked up that he (Potter) feared he would have a stroke of apoplexy and that he (Potter) would be hanged for his murder.

No one questioned his statements or doubted his statistics, and practically the only objections or criticisms centered around two points, viz., that, in their opinion, it was unwise or unnecessary to interfere in cases that would deliver themselves spontaneously, and many objected to the procedure on the ground that, while it might be safe in the hands of a master like Potter, it was an operation that required such a high degree of skill and training that its results would inevitably prove disastrous in the hands of the untrained and inexperienced.

This is almost precisely the stand taken by Williams who, in the fifth edition of his masterly work on obstetrics (published July, 1924), devotes almost an entire chapter to Potter and his work, and, in comparing Potter's mortality of 6.7 per cent with the mortality of the last 10,000 cases at Johns Hopkins Hospital

of 7 per cent, states that the fact that Potter's patients were delivered by probably the most dextrous obstetrician in the world today would account for this low mortality in this class of cases. Williams advises against any wide acceptance of Potter's views on the ground that, while it is no doubt a safe procedure in the hands of a man possessing the extraordinary accomplishments of Potter, its results will become disastrous in the hands of the unskilled and untrained.

Since 1920 Potter has continued to deliver annually a steadily increasing number of women, and by a number of changes and improvements in his technique has so reduced his foetal mortality that for the past three years it has dropped to the amazing figures of 1.9 per cent (soon to be published). No one today at all familiar with Potter's work casts the slightest doubt on his statistics or statements, as all efforts to refute or disprove them have utterly failed to show a single thing that was inconsistent with the indisputable facts that he has presented. And many there are, who formerly denounced him as a crook and a crank, who now loudly proclaim him the greatest obstetrician of the age. One no longer sees the critical and destructive attitude towards Potter that was formerly so widely manifested, and the bitterest criticisms heard are from men utterly unfamiliar with his work.

Practically all the objections brought forward by the leading obstetricians of the country against the adoption of the method seem to center around the two points already mentioned, viz.: First, that in their opinion it is unwise to interfere in any case that would otherwise deliver herself spontaneously; in other words, they think it wrong or unwise to relieve the suffering of childbirth. Second, that on account of the fact it is an operation requiring such a high degree of skill, training and experience, it is safe only in the hands of a master like Potter himself, and in the hands of the untrained and inexperienced its results must prove disastrous.

On the first objection offered I feel that little need be said, though my own personal feelings are to the effect that if a woman in labor is travelling along with commendable celerity and apparently enjoying her experience, I most certainly would not want to rob her of one moment's pleasure by interfering; while, on

the other hand, if she is suffering greatly and wants relief, I feel that she should at least enjoy the same rights and privileges that are exercised by her husband who, when suffering from toothache, prefers to have it extracted painlessly under modern methods, rather than have it extracted under more ancient methods with no recompense in the way of additional safety for extra pains, provided, of course, that her prompt and painless labor is purchased at no additional risk to herself or unborn child.

Answering the second objection, I might say that obstetricians of wide experience all agree that it is an operation that does require a high degree of skill, training and experience, in order to meet successfully the many complications and emergencies that frequently arise, and to avoid disaster, must be met promptly and skilfully. The fact cannot be denied or questioned that skill and training are equally valuable in this as in any other delicate operation, nor can it be doubted that one's results may be measured by the amount and degree of skill that he may possess. No inexperienced obstetrician has any more if as much right to subject the life or well-being of a parturient woman or her unborn child to increased danger—the result of his inexperience in doing this operation—than has the general practitioner, with little surgical training and experience, to do many of the difficult and delicate operations that can only be done safely by surgeons who, by long training and experience, have become experts in their several lines. It must therefore be admitted that the objections on these grounds are well taken, as the disastrous results that must follow in the hands of the untrained and inexperienced must soon bring a procedure into disrepute that may otherwise prove a boon to womankind. This stand taken by leading obstetricians on this matter is but the same stand taken by surgeons generally against untrained and inexperienced men doing major surgery, and but for this firm stand taken the whole realm of surgery would have long since been brought into disrepute.

The fact that the Mayos, Crile, and others are such masters in their particular lines does not prevent or deter the progressive surgeon from acquiring sufficient skill, after studying and training under these same masters, to do any or all of the operations done by them with

equally good results. Nor can I see why any competent and experienced obstetrician, who has been trained under Potter personally, should be viewed in another light. I might also ask, does the fact that Chevalier Jackson is such a master with the bronchoscope disqualify any good nose and throat man from acquiring sufficient skill after proper training to become proficient in the use of the same instrument?

Any further study of Potter's version must first of all take into consideration the immediate and remote effects on both mother and child. As regards the mother's interests, clinical experience has shown definitely that in eliminating the suffering and shock incident to a long and tedious labor or even one of moderate duration, we save the mother's strength, lacerations are extremely rare, and these things, with the infrequent examinations, are responsible for the extreme rarity of infections and other complications of the post-partum period, which is usually remarkable for its rapid and uninterrupted course. Involution is rapid and the lochial flow disappears early. Recently, John Cook Hirst made the statement that it had been his good fortune to deliver several women in their second confinements that had previously been delivered by Potter, and that he considered the pelvic condition absolutely perfect.

In studying the effects on the child, it must be remembered that Sir James Simpson, in 1853, demonstrated the fact that the after-coming head can be brought through a smaller space than the head presenting. This is a principle accepted by all obstetrical authorities. The low mortality and the rarity of brain injuries in cases delivered by this method has been rendered possible by a thorough understanding of the causes of death in breech extractions of the past, and by the substitution of deliberate skill for frantic haste in the face of erroneous fear that if the foetus was not delivered promptly it must perish from asphyxia. Potter and others have proven conclusively that the teaching of the past—that if the foetus was not delivered in from five to eight minutes from birth of umbilicus to mouth, it must inevitably perish from asphyxia—was a grave mistake, and have shown that the high mortality of breech extractions under the old methods was due to the fact that these

babies were killed by frantic and unscientific efforts at delivery. If Potter has done no more than to disprove this erroneous teaching of the past, he still has done the greatest thing for obstetrics that has been accomplished in the past twenty years. This statement was recently made by a prominent obstetrician of New York city, who further stated that the importance of asphyxia as a cause of death in breech deliveries had been greatly exaggerated, with the resulting development of an unsound philosophy and practice which is shown by a convincing literature that finds almost no reflection in the text-books of obstetrics or in clinical teaching or practice of today.

In 1924, Pierson, of Sloan's Maternity Hospital, in an exhaustive study to determine the cause of thirty-six natal and neonatal deaths that occurred in primary breech and emergency versions, especially with reference to the relation of asphyxia to other causes of the high mortality in breech extractions, states that 56 per cent were due to traumatism alone, and combined traumatism and asphyxia was the cause of death in 39 per cent, 5 per cent only being due to asphyxia alone. Complete autopsies were done in all these cases.

He concludes that two outstanding errors of technique are responsible for this high death rate, and that both are predisposed to by the tradition of necessary haste. These errors are, first, failure to accommodate in delivery the long axis of the child to the axes of the pelvis, thus causing dangerous angulations. Second, failure to accommodate the longest diameters of the body, shoulders and head, to the longest diameters of the pelvis—thus causing the necessity of a dangerous degree of supra-pubic pressure and traction, and that frantic haste, as opposed to deliberate skill—is the real clinical error involved.

Hugo Ehrenfest, in his work on birth injuries of the new born, published in 1922, states that, in his opinion, many, if not most, tentorial tears are due to the sudden springing back, or the expansion of the head when suddenly born, after having been subjected to great pressure, as in long and tedious labors, precipitate deliveries, and many forceps cases. Recently, after having watched Potter deliver a number of women, he stated that he could now understand why there were so few cases of intra-cranial hemorrhages in the cases delivered by him, as

the slow, deliberate and methodical way of delivering the after-coming head obviated this sudden expansion of tissues—long under great compression.

Holland, in his work on intra-cranial stress in labor, says (in speaking of intra-cranial pressure due to marked moulding of head as the result of long and tedious labors), "Pressure changes are of much more import than was formerly believed and it is now known that they may play an important part in the production of sub-dural hemorrhages, as it has been shown that such moulding and pressure subject the tentorium and falx to excessive tension, which may result in actual lesions associated with hemorrhage, and which will readily account for many foetal deaths that were formerly considered inexplicable." One can easily see how much, if not all this, can be avoided by Potter's method of delivering the after-coming head.

The immediate effects on the child can in all probability be better understood and appreciated by comparing Potter's mortality with that of other clinics and methods, and, in making this comparison, I shall use the statistics given by him in his paper, read at Atlantic City, 1920, giving a mortality of 6.7 per cent, which has not been questioned by any obstetrical authority. However, I cannot lose sight of the fact that Dr. Potter told me while visiting him in Buffalo that his mortality for the past three years was slightly below 2 per cent (April last). DeLee states that more than 4 per cent of all children born die in child-birth, and quotes Schultze as saying that 5 per cent are still-born and that 1.5 per cent die within a few days, the result of trauma of labor, and that a large percentage—just how large it is impossible to say—are more or less injured, and this, too, in so-called normal labors.

Holt and Babbett, after having studied the records of 10,000 deliveries at Sloan's Maternity Hospital, found that 6.82 per cent were still-born and that 2.91 per cent died within fourteen days—making a combined natal and neonatal mortality of 9.73 per cent.

In Columbia Hospital, Washington, D. C., of the last 10,535 deliveries up to 1920, there were 1,339 still-births and deaths up to the fourteenth day, making a mortality of 12.5 per cent.

In the city of Richmond, Va., there were,

for the six years from January 1, 1918, to January 1, 1924, 24,734 births reported, of which 1,647, or 6.56 per cent were still-born, and 1,028, or 4.02 per cent died during the first fourteen days, making a combined mortality of 10.67 per cent.

Coming home to Roanoke, we find, in 1924, there were 1,812 births reported, 106 of which were still-born, and seventy-six died within the fourteen days following delivery, making a mortality of 9.9 per cent.

In advocating elective podalic, or Potter's version for the sole purpose of eliminating the second stage of labor, it will be unnecessary to mention the many other indications for version as they are all covered by this broad indication.

In order to do versions safely and successfully, aside from a thorough knowledge of the technique, one should be thoroughly familiar with every emergency that may arise, and at the same time have the utmost confidence in his ability to meet them promptly and deliberately, as, otherwise, he may face disaster. One should always have the services of a competent anaesthetist. The cervix must be completely dilated; this is extremely important, as it is in the presence of incomplete dilatation that we often encounter our most difficult complications. This, however, does not mean that the dilatation must have been completed by natural means before beginning the version, but it is imperative that the cervix be obliterated, soft and dilatable, in which case the cervix may be dilated gently by the advancing hand. The membranes should be intact or only recently ruptured. The uterus must not be in a state of tetanic contraction, and the head must not be too firmly engaged. The disproportion, if any, should not be too great, as in that case a Cesarean section would be indicated.

Briefly describing the technique: The woman is scrubbed and shaved as for any gynaecological or obstetrical operation, and anaesthetized to the full surgical degree, then placed on the operating table or across the bed in a modified Walcher position. This position is important, as DeLee and others have shown that this position, by tilting the pelvis, increases the diagonal conjugate diameter from one to one and one-half c.m. The legs are held by assistants as closely together as possible and the knees slightly higher than the level of the

body. It has been shown that this position relaxes the perineal fascia. The bladder is now catheterized; this is important, as many women void and yet retain several ounces of urine. This not only gives more room, but prevents the bladder from being dragged from its attachments, a thing that not infrequently happens even in normal labors with distended or half empty bladder.

The operator, after having donned full-length obstetrical gloves, begins to iron out the vagina and perineum; this is a very important part of the technique, and is equally as important in the multipara as it is with the primipara. To do this properly should take from six to ten minutes. It requires considerable experience to do this satisfactorily, as each perineum is an individual problem in itself, and no two can be properly prepared by the same amount of pressure or in the same length of time. It is begun by introducing the index and middle finger in the vagina. At this point the vagina is flushed with tincture of green soap. The two fingers are now swept from side to side and then up and down over the perineum and vagina; the third and fourth fingers are then introduced and the same movements repeated as each successive finger is introduced, until finally the whole hand is introduced.

This having been completed, the hand is now gently and slowly passed into the uterine cavity. After determining definitely the position of the foetus by finding the ear, the head is now displaced to one side, and the membranes separated from the interior of the uterus by gently sweeping the hand, avoiding the placenta.

The membranes are now ruptured high up, the hands are folded across the chest, and the feet are sought and grasped in such a manner that they are astride the middle finger, the index and ring finger being external to the ankles. The feet are now slowly and gently drawn down until the knees appear at the vulva, when the version is complete. The feet are now wrapped in a dry towel and gentle traction continued in the same direction. As soon as the hips appear at the vulva, one should note whether or not the back of the child is inclined to rotate forward; if not, traction on the lower, or posterior, foot should be made, which usually results in bringing the back

forward. The cord should now be looked for and, if found between the legs, should be drawn down and slipped over one leg so it will not interfere with delivery.

As soon as the hips are born, one should pause for a short time, after which a second dry towel is wrapped around them, and slow, gentle and continuous traction continued until the scapulae are visible. A third dry towel is wrapped around the chest, and the foetus grasped around the chest with both hands and gently rotated from side to side in order to determine which shoulder will rotate most easily under the pubic arch. After the shoulder is rotated well up under the pubic arch, it is delivered by pressing the scapula with the index and middle finger firmly, but gently, up under the pubic arch, when the arm is usually delivered without even the operator's hands touching it. The posterior shoulder is now rotated and delivered in the same manner.

After the shoulders are delivered the operator should determine whether or not the cord is around the neck, in which event it must be loosened or, if this is impossible, it should be cut and clamped.

After a short pause, he is ready to proceed with the delivery of the after-coming head. Two fingers of the left hand are introduced into the vagina, and one or both in the baby's mouth in order to maintain flexion, the baby lying across the operator's arm. The head is now grasped above and behind the pubes with the right hand and firm pressure over the occiput is made in order to aid flexion and guide the head through the pelvis. No traction on the lower jaw is ever permissible on account of the danger of fracture.

As soon as the mouth is exposed, all efforts at delivery are stopped and the mucus is milked out of the baby's mouth and throat by gently stroking the front of the neck, when the baby usually begins to breathe and frequently to cry.

In the event the perineum is apparently in danger, it is well at this point to wait for a short time in order that it may relax or dilate more completely, as there is no reason for haste. This frequently saves a perineum that might otherwise be traumatized. The head is now slowly and carefully delivered.

The baby, after being born, is laid across the mother's abdomen and usually soon begins to

breathe spontaneously. It is never advisable to spank the baby or use any rough manipulations. In the event breathing is unusually delayed, a small catheter is passed into the larynx and the lungs inflated; this is, however, rarely necessary. Pituitrin is usually administered immediately after the baby is born, after which the placenta is usually expelled spontaneously.

If any great difficulty is encountered in the delivery of the after-coming head, the delivery may be completed by forceps; this is, however, extremely rare. In this event, the forceps recently devised by Piper, of Philadelphia, for this particular class of cases, will be found to be of great assistance, as it is extremely difficult to apply ordinary forceps to the after-coming head without endangering the life of the child or the integrity of the perineum.

It must be remembered that all these manipulations must be carried out with the utmost gentleness and deliberation. One should never hurry, and, above all things, one should never allow his fears or anxiety in the presence of an emergency—no matter how grave—to induce him to expedite delivery to the point where he may awake too late to the fact that he is substituting frantic haste for deliberate skill, and thereby courting disaster.

I feel that the following conclusions, which have been arrived at after as careful and as thorough study of the subject as was possible for me to make during the past five years, are fair and conservative:

First, That in skilled and trained hands, it is a safer method of delivery for both mother and child than any other method with which I am at all familiar.

Second, That the women delivered by this method have less shock, less traumatism to the birth canal, less infections and other complications of the post-partum period, and that they convalesce more rapidly and satisfactorily than with any other method of delivery, not excluding so-called normal labors.

Third, That it practically eliminates the use of forceps, both high and low, as well as the traumatism to both mother and child that so frequently accompanies their use.

Fourth, That intra-cranial hemorrhages and other birth injuries are less than in normal labors.

Fifth, That it saves life and it saves suffering.

Now, in conclusion, may I not ask, if these things be true, why should not this boon to womankind be taken to her bedside in her time of travail, that her hour may be shortened, her anguish lessened, and her joy be made complete.

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MacBain Building.

ETHYLENE ANAESTHESIA.*

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In the *Journal of the American Medical Association* for March 17, 1923, there appeared an article by A. B. Luckhardt and J. B. Carter, of the University of Chicago, advocating the use of ethylene as a general anaesthetic. On May 19, 1923, the same journal carried an article giving the experience of surgeons at the Presbyterian Hospital in Chicago, who had used the gas in one hundred and six (106) cases.

In the issue of *Surgery, Gynecology and Obstetrics* for June, 1925, Dr. W. J. Mayo, in reviewing the notable advances in surgery for the past twenty years, lists the introduction of ethylene, as an anaesthetic, as one of these—a rather remarkable record for two years and three months. Since the publication of the original article, reports from clinics all over the country have appeared endorsing its use.

The chief advantages of ethylene over nitrous oxide or ether are:

1. The ease and rapidity of induction of anaesthesia.

2. The corresponding rapidity with which patients return to consciousness.

3. The absence of cyanosis.

4. Muscular relaxation much greater than with nitrous oxide.

5. Post-operative nausea slight or absent.

6. In the poor surgical risk, and especially where the complication is cardiac or pulmonary in nature, it is relatively safer.

7. The gas does not form a chemical combination with the hemoglobin, but is in solution in the blood plasma.

The disadvantages are:

1. Ethylene and air in the proportions of four parts ethylene to ninety-six parts air form an explosive mixture.

2. The capillary oozing seems to be somewhat increased. This increase of oozing has been observed, at least by us, only in the subcutaneous area and has never given rise to any trouble.

The danger of explosion was emphasized in the second paper quoted above, and contra-indicates the use of this gas in presence of an open flame, the cautery, or an electric spark. The widespread and increasing adoption of this gas as an anaesthetic is the best proof that ordinary intelligent care is all that is necessary to prevent an explosion.

The relaxation of abdominal muscles under ethylene is greater than that obtained by the use of nitrous oxide, but considerably less than with the use of ether.

When necessary, however, ether in any desired amount can be added. Any of the gas machines on the market may be used.

Our own experience with ethylene began on March 6, 1924, since which time we have used it in four hundred and fifty-six (456) cases up to August 15th, of this year.

Gynecological:

Major	21
Minor	107
Appendectomy	75
Incision and drainage	81
Resection of intestine or stomach	7
Gall-bladder	11
Supra-pubic prostatectomy and cystotomy	8
Thyroidectomy	5
Breast amputation	11
Amputation of extremities	18
Mastoid	3
Reduction of fracture	21
Removal of foreign body	12
Hernia	12
Nephrectomy	4
Orthopedic	17
Minor (general)	36
Cesarean section	7

As will be seen by the above list, the variety of operative procedures is fairly wide, ranging from gastric resection and radical breast amputation on the one hand, to drainage of an abscess or a "D & C" on the other.

It has happened that we have had a number of tubercular patients, who, besides having pulmonary involvement, had developed an acute surgical condition—appendicitis most commonly. With these people, the choice of an anaesthetic is of vital importance, and we

*Read before the Southwestern Virginia Medical Society, at Mountain Lake, Va., August 27-28, 1925.

have found that ethylene is most satisfactory, giving requisite muscular relaxation, and causing no lung irritation.

Summary.—Ethylene will not take the place of ether, and where the cautery is to be used, nitrous oxide is indicated, but it has won for itself a definite and fairly wide field of usefulness.

THE PLACE OF PITUITRIN IN OBSTETRICS.*

By M. PIERCE RUCKER, M. D., Richmond, Va.

In 1895 Oliver and Schafer¹ discovered that extracts of the pituitary body caused a rise in blood pressure when injected intravenously. They described the action as being very similar to that of the extract of the suprarenals. Howell² in 1898 found that the pressor substance was found only in the infundibular portion of the pituitary body. He showed that it markedly slowed the heart instead of accelerating it as Oliver and Schafer had thought. Dale³ in 1906 showed that the infundibular extract had a great effect on the uterine muscle. In 1909 Blair Bell⁴ came to the same conclusion independently and introduced its use into obstetrics. He recommended its use to promote labor pains and in post-partum hemorrhage, retention of urine, and preparatory to a Cesarean section. It is interesting to note what is probably the first description of its action upon the human uterus. He says a single injection caused the uterus immediately to contract into a blanched ball which relaxed subsequently to a moderate degree. Two years later Hofbauer,⁵ Stern,⁶ Boudy⁷ and others⁸ introduced its use into German obstetrics. Hofbauer was apparently the first to maintain that the drug stimulated and strengthened normal uterine contractions. Pituitary extract quickly gained widespread popularity among physicians and even among midwives. This can be readily understood, when it is recalled that it produces results with such startling rapidity. Pharmaceutical houses and packing houses vied with each other in producing first a potent preparation, and then a uniform product. Little effort was made to determine its action upon the human uterus. As a result, many erroneous and conflicting statements have appeared in the literature. It is commonly stated that it will

not produce an abortion or start labor, and yet Watson⁹ and others^{10, 23} use it constantly for that purpose. It is proclaimed that it strengthens normal uterine contractions, and yet nothing could be further from the truth¹¹. I am proud to say that Americans were the first to recognize the dangers of the drug. At the meeting of the American Gynecological Society¹² in 1913, a distinct note of warning was sounded, especially by Cragin, Polak and Shuddiford. The next year our own Dr. John Winn¹³ at the meeting of the Medical Society of Virginia said he saw no need of pituitrin if one knew how to use forceps. In 1916 and again in 1917 Mundell¹⁴ made exhaustive studies of the reported catastrophies that had followed the use of pituitary extract in obstetrics.

The two outstanding characteristics of pituitary extract are (1) its effect upon blood pressure and (2) its effect upon uterine muscle. These two actions are so constant that they are utilized in the two methods of testing the preparations that are put on the market. The obstetrician must take into account both actions. Along with the rise in blood pressure there is a depression of the heart itself. This is thought to be due to the direct action of the drug on the heart muscle. Constriction of the coronary arteries may also play a part.

It is the action of pituitary extract upon uterine muscle that gave this substance such tremendous vogue in obstetrics. I desire to direct your attention to two features of this action: First, the variability of response. It is a well-known clinical fact that some uteri show little if any response to ordinary or even large doses. Other uteri give a tremendous response to very small doses. No reason has been suggested for such variation, and, what is more important, there is no way of telling beforehand what sort of response you are going to get in any particular case. Not only do uteri differ in their sensitiveness to this drug, but the same uterus varies according to its functional state. The uterus reacts more promptly and more energetically the nearer the pregnancy is to term. Two minims of pituitrin will give a quicker and more energetic action in the first stage of labor than two and a half times that amount when labor is induced prematurely. In the former case a definite response begins within two minutes whereas in

*Read before the Alleghany-Bath County Medical Society, September 11, 1925.

the latter it takes from five to eight minutes before any effect is seen. After labor is completed the uterus quickly loses this heightened sensitiveness to pituitary extract. I have some external hystero-grams, made according to Rubsamens's¹⁵ method, that were made immediately after the expulsion of the after-birth. These show a lapse of six minutes from the time of injection of 1 c.c. of pituitrin to the beginning of any pituitary effect.

The second point to which I wish to call your attention is the character of the response. Even the smallest doses cause a series of contractions without any pause between them. The result is an increase in intrauterine pressure. This effect can be demonstrated and measured even when clinically there is no apparent action. I¹⁶ have internal hystero-grams that show such an incomplete tetanus, lasting twenty minutes and yet the patient dosed off to sleep after the hypodermic was given. When the dose is large enough to give any clinical effect, there is a great increase in the intrauterine pressure and the effect lasts much longer.

To summarize, the action of pituitary extract on the circulatory system is to increase the blood pressure by constricting the smaller arteries and at the same time to depress the heart by direct action on the cardiac muscle. Its action upon the uterus is to elicit an incomplete tetanus even in the smallest doses. Moreover, there is great variation in response of different uteri that cannot be foreseen.

Before considering to what practical use pituitary extract could be put, let us for a moment discuss the physiology of the fetus. The fetus semi-floats in amniotic fluid. It is protected from loss of heat. Fetal movements are slight. Respiratory movements do not occur. There is no digestion. Development and growth are the chief functions of the fetus. Food radicles and oxygen are supplied in assimilable form by the mother by way of the placenta and $C O_2$, and the end-products of metabolism are gotten rid of by the same route. The details of this transference, so far as they are known, are well described in a recent critical review by Strachan.¹⁷ There is some evidence that the placenta, especially in the earlier months of pregnancy, may also assume some of the functions of the internal organs of the fetus, such as the liver, until those organs de-

velop sufficiently to take over their own duties. Hofbauer¹⁸ describes certain reticulum cells that are found in young human placentae. These cells increase in numbers and persist in older placentae in the presence of acute and chronic infections. This he believes to be a part of the defensive mechanism of the fetus. Be that as it may, the placenta in the latter months of pregnancy is to all intents and purposes a vast permeable membrane some seventy square feet¹⁹ in extent that separates the fetal from the maternal blood. The interchange of dializable substances is so complete, as the work of Slemmons²⁰ has shown, that the contents of the two bloods are the same. On the maternal side of this membrane the blood circulates sluggishly in venous sinuses which empty and fill with the contraction of the uterus. The contraction and relaxation, especially the relaxation, is very necessary to maintain the circulation of maternal blood in the uterine sinuses and, therefore, to the proper oxygenation of the fetal blood.

In trying to determine the proper place of pituitary extract in obstetrics, one must consider not only the mother but also the baby. Sometimes, I think undue emphasis has been laid on the maternal catastrophies that have followed its use. While more cases of ruptured uteri and maternal deaths²¹ have been reported in connection with pituitrin in the brief period of fifteen years than have been reported in connection with ergot²² in the first forty years it was used antepartumly, these are the unfortunate exceptions rather than the rule. On the other hand, every time that pituitary extract is given antepartumly, there is a serious interference with the placental circulation, and, unless delivery takes place within a few minutes, the fetus suffers. This is the explanation of the increased number of still-births that follow its use. DeLee, in discussing Sharpe's paper at the last meeting of the American Medical Association, made the statement that his pathologist could tell, when doing an autopsy, if the mother had been given pituitrin, simply by looking at the fetal brain.

In the light of the action of pituitary extract and the physiology of the placenta, it would seem unwise to use this substance before the birth of the baby except in Cesarean section when about to make the uterine incision. Here it is a distinct advantage, lessening the

hemorrhage and contracting the uterus so as to make suturing it easier. If the sutures are placed in a contracted uterus they are not so apt to tear out as when placed in a flabby organ that afterwards contracts. In antepartum hemorrhage, when there is a placenta praevia or when the placenta is situated in the body of the uterus, Burgess²⁴ strongly recommends a gauze pack in the cervix and vagina, and small doses of pituitrin. The prognosis for the child is bad in such cases regardless of how they are handled, and the chief thing to be feared in such practice is a ruptured uterus at the placental site.

The use of pituitary extract in the third stage is a debatable one. Ryder²⁵, Brodehead and Langrock²⁶, Hefferman²⁷, Potter²⁸, and Pomeroy²⁹, find that it lessens bleeding and shortens the placental stage. On the other hand, hour-glass contractions, with great delay in the delivery of the placenta, have been reported. After delivery, it has been used to stop postpartum hemorrhage. It should be remembered that it takes longer to act at this time than it does antepartumly and too great reliance should not be put in it for that reason. The effect is somewhat transitory, and it is usually recommended to bolster its action with ergot. There is another way of prolonging its action that I have never seen mentioned, and that is to give it continuously in a hypodermoclysis. The effect is almost as prompt, just as strong and lasts for several hours. This is the principal use I make of pituitrin. When a patient flows too much to be normal and yet not enough to justify packing the uterus, I give 1 c.c. of pituitrin in 200 c.c. saline under the breast by the drop method.

Finally, I wish to call your attention to the happy effect on the bladder in what might be called postpartum cystic inertia, and in those fortunately rare obstetric complications—ileus and acute dilatation of the stomach. While it will replace neither the catheter, the rectal tube, nor the stomach tube, it is often of decided benefit.

In conclusion, I trust I have indicated in a general sort of way the uses and dangers of pituitary extract. Recognition of the dangers is becoming general^{30, 31, 32, 33}. In many respects obstetrics is like playing a game of golf. Each player must choose his own clubs, being guided in his choice by the lie of the ball and his own

skill or limitations. I would liken pituitary extract to the niblick. It is not a club to use when everything is going well, but only when you get into difficulties. Even then its use is limited, and unless it is used with discretion and skill, you will play havoc with your score, and very often destroy the little ball.

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THE MANAGEMENT OF LABOR.*

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The subject of this paper may seem to be of too elementary a nature to be worthy of the consideration of this Society. Sometimes, however, it is well to look into procedures which we have become accustomed to regard as more or less stereotyped and to endeavor to find means of improving them.

The obstetrician is often told by workers in other branches of the profession that, while in all other departments of medicine amazing progress has been made, the mortality and morbidity in obstetrics are no less now than they have been for centuries past. While this statement is not entirely correct, there is much truth in it, and for a reason. Surgery is done

by surgeons, ophthalmology is in the hands of men who have made special study of the eye, and work in nearly every other branch of medicine is carried on by persons trained to do the particular things they undertake. Who does most of the obstetrics?

A man who needs to have his gall-bladder removed will be careful to have a trained surgeon called to operate. If he has tonsillitis, he demands the services of a specialist. If his wife is to have a baby, he thinks that anyone with a license to practice medicine is entirely competent to attend her. Many women, through ignorance or poverty, are denied the care of any physician and must depend on untrained women. Failure to realize the gravity of child-bearing is not confined to the laity. Many physicians, poorly trained, attempt versions, forceps deliveries, and even the most serious and still most commonly resorted-to procedure of manual removal of the placenta. Few of these men would open an abdomen, but if a man is clean, he can enter the peritoneal cavity and remove an appendix with infinitely less danger to the patient than he can invade a recently pregnant uterus and remove the secundines.

Most obstetrics is done by the general practitioner, and rightly so. It is he who should attend the cases of pregnancy which occur among his patients, while the services of the obstetrician should, for the most part, be reserved for those occasions where special knowledge and skill are needed.

The type of man who will attempt operations which are beyond his powers is slowly disappearing, but there is still too little realization of the possibilities in regard to the safety, comfort and future health of the woman who goes through a so-called normal labor.

The work done in recent years on the subject of surgical shock has shown that this condition, so important that it may swing the balance from life to death, is greatly increased by traumatism, hemorrhage, pain, fatigue, and fear. In operative work, we all attempt to eliminate these factors, and surgery has been made safer and less uncomfortable for the patients. In obstetrics, little thought has been given to the prevention of shock, although obstetrical shock is no less a fact than is surgical shock. It is even more important to

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prevent shock in labor than at an operation. In the latter, the patient merely has to get well; after labor, she must not only recover, but she must do it so surely and so quickly that she will be able to sustain the life of her baby by providing nourishment for it.

In the first stage of a normal labor, trauma and hemorrhage are not encountered; pain, fatigue, and fear are usually marked.

The time to begin to combat fear is at the first visit of the patient. She should see her physician frequently during pregnancy, not only for the necessary examinations, but that she may feel she is being cared for and that he may gain her complete confidence. During labor the doctor should see his patient often. During the second stage, at least, he should be in or near the delivery room, and she should know it. Much of the screaming by women in labor is due to fear rather than to pain. Everyone has seen a patient become quiet and "use her pains" as soon as the doctor arrives, though she has been screaming and tossing wildly about when she thought that he was not at hand in case of need. Patients are seldom unmanageable if they are properly trained during pregnancy.

Pain and fatigue, during the first stage, can be much lessened by the use of hypnotics. Practically every sedative drug has been used for this purpose, and there are several which seem to have good effects. The drug par excellence is morphine. It not only gives the greatest relief from pain, but has a marked softening effect on the cervix. Even though the pains become less severe and the contractions less frequent, though the patient may go to sleep for an hour, the labor is shortened through the more rapid dilatation of the softened cervix and by the renewed strength of the contractions in a patient refreshed by even a short sleep. The use of a 50 per cent solution of magnesium sulphate in conjunction with the morphine, as advised by Gwathmey, increases and lengthens the hypnotic action without adding toxicity.

Ill effects on the fetus have been feared in the use of morphine. At Rotunda Hospital, Dublin, where massive doses of the drug are given in the treatment of eclampsia, no harmful effect on the child has been noted. When "Twilight sleep" was being studied at nearly all the clinics of this country, the warn-

ing was that morphine should not be given within three hours of the expected time of delivery. It was said that that length of time must elapse before the fetus could eliminate the drug in utero, and that a baby born while still affected by morphine would be slow in responding to respiratory stimuli.

Many times has the lessening of pain and the increase in the power of uterine contractions caused the writer to misjudge the time of delivery, and never has a child seemed to be suffering from morphinism, though born within an hour after administration of the drug. Sometimes babies born after the use of morphine have needed gentle resuscitation, but the respiratory delay could usually be traced to toxemia or anaesthesia.

Morphine lessens fatigue in the first stage by allowing the patient to rest between pains. Even though the pains are not entirely stopped, the patient usually dozes or perhaps falls into a deep sleep between contractions.

Pain, fatigue and fear are lessened in the second stage by the use of an anaesthetic with each pain. For administration over a longer period of time, gases such as ethylene and nitrous oxide, are to be preferred. Ether gives excellent results if not employed for more than an hour. If given for a longer period the child may suffer from its effects. The analgesia secured by giving gas or ether with each pain enables the patient to use her voluntary expulsive muscles to the limit. At the crisis of the contraction she does not "hold back" because there is no pain. This extra exertion on the part of the mother probably shortens the second stage considerably. By inducing anaesthesia at the end of the second stage, the patient can be spared the excruciating pain which attends the birth of the head.

Besides adding to the pain, fatigue, and fear, an unduly long second stage may result in injury to the child. Hours of compression of the head due to resistance encountered in the pelvis may result in future mental impairment. Stein, after studying the histories of adult imbeciles and other mental defectives, found that the majority were born after long, hard, but so-called normal labors. Very few gave the history of having been delivered by forceps. Englekens, of Amsterdam, and others have reached a similar conclusion. It is not possible to fix a definite length of time,

but if, after two, or at most three hours, the head fails to make progress through the pelvis, forceps, properly applied, following manual rotation if the occiput is posterior, will best conserve the interests of mother and child. This does not mean that the head should be pulled hurriedly through the pelvis. Sudden compression is followed by rapid expansion of the cranial bones, with frequent tearing of the tentorium cerebelli, followed by intracranial hemorrhage. Holland, in a large number of autopsies on still-born babies and those who died shortly after birth, found intracranial hemorrhage in 51 per cent. Of the dead babies delivered as breeches, 88 per cent showed lacerations of the tentorium.

Pituitrin, by forcing the head rapidly past the resisting forces of the pelvis, causes this quick compression and expansion. This is an important but seldom considered addition to the number of reasons for believing that pituitrin is absolutely contraindicated in the second stage of labor.

Formerly the writer expended much effort in trying to prevent lacerations of the perineum. Frequently, his efforts were rewarded by the finding of an apparently intact outlet after the delivery of even an over-sized child. At that time he was not so insistent on follow-up examinations, and many of his patients were not seen after their discharge. Some, however, presented themselves for care during subsequent pregnancies. Examination regularly revealed a slightly relaxed outlet with perhaps a small rectocele. Almost always a small cystocele was found. The cause of this condition was an overstretching or subcutaneous laceration of pelvic structures.

Unless the child's head is very small and the perineum is unusually dilatable, it is almost impossible to accomplish the delivery of a primipara without damage to the pelvic floor. Probably a small laceration, properly repaired, does less damage than the delivery of a child "without a tear." The laceration will be uneven and may extend far up into the vagina, so the operation of episiotomy was devised. This may consist of the incision on either or both sides of the perineum or downward in the midline. The last named method, properly called perineotomy, seems to be the best, for several reasons. It separates the perineal tissues in the median raphe instead of

cutting muscles. It is easier to repair at a secondary operation should one become necessary. The oblique incision, when healed, sometimes causes distortion of the outlet by contraction of the scar.

Three sutures of 20-day chromic cat-gut No. 2 will close the usual perineotomy. Many operators fear absorbable sutures in the perineum and use silk-worm gut or a similar suture. These are often difficult to remove, as well as painful to the patient. They form excellent paths for infection. Chromic cat-gut, if not buried, will be so affected by perspiration, lochia, and urine that it will be absorbed before healing has progressed sufficiently and the wound will break down. Therefore, it is important that all chromic sutures should be inserted just beneath the skin and emerge under the vaginal mucosa so that they will be completely buried.

Examination after two months will in almost every case reveal a perineum which on inspection and palpation can scarcely be distinguished from a nulliparous outlet. Cystocele is rare after perineotomy. Subsequent labors necessitate other perineotomies, but the results seem to be as good after second and third operations as after the first.

In the third stage, the factors which produce shock are trauma and hemorrhage. Vigorous kneading and squeezing of the uterus can cause much bruising of the uterine muscles. This is usually unnecessary and only subjects the patient to useless trauma. Pituitrin given as soon as the child is born shortens the third stage, causes firmer contractions, and thereby lessens hemorrhage. Two-thirds of post-partum hemorrhages are caused directly by mismanagement of the third stage of labor. One of the best tests for an obstetrician is his ability to control his activities until nature has separated the placenta from the uterine wall and has deposited it in the lower uterine segment or vagina.

Attention to the finer details of the management of labor results in the rapid recuperation and convalescence of the mother. This is of marked benefit to the child, as the quality and quantity of mother's milk is undoubtedly influenced by her physical and mental condition. If we are able to remove any of the dread of childbirth, we are surely helping to prevent the spread of race suicide.

Constant and careful observation during pregnancy, with sympathetic and skillful management of labor, will produce that which is the sole aim of obstetrics—a mother undamaged by childbirth and a baby starting life unhandicapped by birth injuries.

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 Stein.

The Farragut.

REMARKS ON FOREIGN BODIES IN THE AIR AND FOOD PASSAGES.*

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Foreign bodies in the air and food passages should no longer be considered as curiosities; they occur so frequently that we might better say they are of common occurrence. Only recently, Dr. Chevalier Jackson reported a series of over 1,200 cases from his clinic alone, and in the past month we have had two such cases at the University Hospital, which I wish to report at this time.

Since the general men are the ones to see these cases first, I wish to discuss briefly the etiology, symptomatology and diagnosis, for the early recognition of this condition is of vital importance.

In regard to *etiology*, carelessness is the most frequent contributing factor, for nearly always the patient had been holding in the mouth foreign bodies which did not belong there, such as tacks, pins, marbles, coins, etc. Small children, in imitation of their elders, had done the same thing, and babies have been left within reach of open safety pins, given improper things to play with, or else improperly prepared food. We note that the majority of such accidents occur in children under five years of age.

Symptomatology and Diagnosis.—The initial symptoms are choking, gagging, coughing and wheezing, often followed by a symptomless interval. The foreign body may be in the nasal chambers, nasopharynx, pharynx, larynx, trachea, bronchi, esophagus, stomach or intestinal canal, or perhaps passed by bowel, coughed or

spat out, with or without knowledge of the patient, or, again, the initial coughing or choking may have been forgotten. With a history of foreign bodies having disappeared from the mouth, or any of the initial symptoms listed above, the presence of a foreign body should be suspected until its absence is proved, for the oversight of a foreign body may lead to grave complications, and especially is this true when the symptomless interval is considered.

Laryngeal Foreign Body: We usually have an initial laryngeal spasm, followed by a wheezing respiration, croupy cough and varying degrees of impairment in phonation. Pain may be present, and located in the laryngeal regions or referred to the ears. There may also be dyspnoea and cyanosis, with inspiratory indrawing of the supra-sternal notch, supra-clavicular and intercostal spaces, and lower sternum. These foreign bodies may be quickly fatal, due to subglottic oedema or occlusion of the glottis.

Tracheal foreign bodies, when fixed, may produce only a wheezing and dyspnoea. When movable, they may produce, along with dyspnoea, a palpatory thrill, and the rumble and sudden stop can be heard with the stethoscope. Cough, hoarseness, dyspnoea and cyanosis are often present.

Bronchial Foreign Bodies: Dyspnoea is usually absent, although the respiratory rate may be increased if a considerable part of the lung is out of function by the obstruction of a main bronchus, or if the inflammatory sequelae are extensive. Here, also, pain may be present, and the physical signs show limitation of expansion on the affected side, impairment of the percussion note, and lessened transmission or absence of breath sounds distal to the foreign body.

The above symptoms may be followed by a symptomless interval of indeterminate time, often many years, but ultimately we get a cough and purulent expectoration, with periodic attacks of fever, chills and sweats, also emaciation, clubbing of fingers and toes, night sweats, etc., perhaps closely simulating the picture of tuberculosis, except for the absence of tubercle bacilli. The foregoing applies to metallic and non-irritating foreign bodies. Those of the irritating class, as peanuts, peas, beans, etc., usually produce violent and acute symptoms in which laryngeal spasm is nearly

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always present, and usually within twenty-four hours a diffuse purulent laryngo-tracheo-bronchitis ensues, accompanied by fever, toxemia, cyanosis, dyspnoea and paroxysmal cough. The condition of "drowned lung" rapidly ensues, the child being unable to cough up the thick mucilaginous pus, and literally drowns in its own secretions. The older the patient with organic foreign bodies, the less severe the reaction, but lung abscess develops much sooner than in cases of mineral foreign bodies.

Esophageal Foreign Bodies: These produce no clear-cut diagnostic symptoms. There may be dysphagia and regurgitation of food. Pain may be present, due to the penetration of a sharp foreign body or the inflammatory reaction. Perforation of the cervical esophagus may produce emphysema and cellulitis, while in the thoracic region we may have a mediastinitis or pyopneumothorax when the pleura is perforated. Gastric foreign body as a rule produces no symptoms. Roentgenology is of incalculable service in the diagnosis and localization of these foreign bodies, and has been developed to a high degree of efficiency in this field; and, last of all, in suspected cases of foreign body, we may do a diagnostic endoscopy, for it is a procedure attended by very little risk, and one in which there is no absolute contraindication, all procedures being carried out under local anesthesia.

I hope that I have been able to present a brief but helpful outline of the diagnosis of these conditions, and also to furnish some idea of the gravity and prevalence of this condition. Last of all, I wish to append the customary list of "Don'ts," for endoscopy has been developed to such a degree of efficiency and safety that many of the older ideas must be discarded, such as, don't make blind digital efforts at removal; you may only shove it down. Slapping on the back may accomplish the same result, and where there was a simple laryngeal foreign body, it may pass on to a lower bronchus. Don't suspend by the heels, for, if the invader is in the trachea, it may occlude the glottis and produce a sudden death. As for the esophagus, don't pass bougies or probangs, for perforation is all too frequent with these methods. Nor is it wise to advise eating of solid food; it can accomplish nothing, and may greatly complicate removal by endoscopy. And, finally, do not minimize the dangers, for

the presence of foreign bodies in the body constitutes a grave condition, frequently causing death unless removed. The above remarks constitute a brief review of the work of Dr. Jackson, and for a more complete treatise his textbook should be consulted.

I wish now to report two foreign body cases that have come to us within the past month.

Case 1. Hospital No. 50835. Patient, a colored boy three years of age. Forty-eight hours previous to admission, while eating beans and meat with crushed bone in it, he became strangled and apparently aspirated some of the food.

On admission, patient could not speak above a whisper. Breathing was very wheezing in character, with marked expiratory and inspiratory dyspnoea, accompanied by indrawing of suprasternal notch, and supra-clavicular and intercostal spaces. Coarse and sibilant rales heard throughout both lungs, and resonance was slightly impaired.

X-ray examination showed a shadow of increased density in laryngeal region—thought to be the larynx. Direct laryngoscopy showed a foreign body in subglottic area in antero-posterior position. Slight amount of bleeding from laryngeal mucosa. Foreign body grasped during inspiration with alligator forceps, and removed. Examination showed an irregular flat piece of bone, with serrated edges, about 1 c.m. in diameter.

All symptoms rapidly subsided after extraction, and patient was discharged in three days.

Case 2. Hospital No. 51079. A nursing white child, eleven months old, had three days previously to admission been given squirrel meat. There was a choking and gagging, and baby had some difficulty in swallowing afterwards.

Examination was negative except for dysphagia and occasional regurgitation of food and liquids. X-ray showed a shadow of increased density localized in upper esophagus.

Oesophagoscopy with 7 m.m. tube showed a bony foreign body just below crico-pharyngeus, lying in transverse position. Foreign body grasped with side-curved forceps and readily extracted.

Child made an uneventful recovery, and was discharged on the following day, in good condition. Subsequent X-ray negative.

Clinical Reports

PROGRESS REPORT ON A CASE OF PULMONARY TUBERCULOSIS TREATED BY THORACO- PLASTY.*

By GERALD A. EZEKIEL, M. D., Richmond, Va.

This is the case of a Mrs. J. D., white, female, age forty, which was reported by Dr. Johns and discussed by me at the last annual meeting of this society. At that time only the first stage operation had been performed and the patient had gained ten pounds.

A brief summary of this case is as follows: Admitted to Pine Camp Sanatorium July 18, 1924. The history was typical, sputum positive. Physical examination showed cavitation of the left lung, very slight involvement of the right. X-ray July 24th:

"Right Lung: Slight peribronchial thickening, an occasional calcified tubercle is seen.

"Left Lung: Moderately well-advanced tuberculosis involving both lobes. Two cavities each approximately one inch in diameter are seen in the upper lobe." Weight 113 pounds.

Pneumothorax was commenced; but after a few weeks' trial, I came to the conclusion that, due to adhesions, it would not be successful. X-ray August 15th: "The lower half of the left lung is apparently totally collapsed. No fluid is visible. There is a marked pleural thickening close to the border of the heart and it is probable that there are pleuro-pericardial adhesions. The upper lobe is not collapsed, probably being held to the chest wall by adhesions. A cavity is seen in the apex. The heart has a slight displacement to the right."

I consulted with Dr. Johns, operation was decided upon, and six ribs resected. Following this, there was more rapid improvement, with cessation of symptoms, and in December, she weighed 144 pounds. X-ray report of September 19th: "The upper six left ribs have been resected in the scapular region. The entire lower lobe and a portion of the upper lobe is completely collapsed. The remaining portion of the upper lobe is compressed as a result of the operation. No fluid is found. The cavity reported on previous examination is not definitely seen."

Early in January, a second operation was

performed by Dr. Johns. There was a slight set-back in her general condition at this time, from which she soon rallied, and improvement continued with no signs of activity, weight going up to 148 pounds. Sputum had become negative. She was discharged from the Sanatorium April 11, 1925, condition "Arrested." Physical examination showed no activity on the right, and collapse of the left lung—with no signs of activity. This patient has been kept under observation at the City Dispensary and, as late as August 13th, although away from the Sanatorium for four months, she maintains weight of 148 pounds. Physical examination shows no signs of activity.

The result has been most gratifying when you picture her condition in July, and note that in less than nine months she was discharged from the Sanatorium an arrested case. She is away on a visit now, else I should be glad to show the patient here today. On Sunday, October 11th, her daughter reported that the patient was doing well.

My object in reporting this case is to call attention at the end of a year to the good resulting from collapse of the lung, and from my own experience as well as the reports of others, I have every reason to believe that this will be permanent.

1652 West Grace Street.

Proceedings of Societies

The Accomac County Medical Society

Held its annual meeting at Drummondtown Tavern, Accomac, Va., on November the 18th, with the president, Dr. W. M. Burwell, Chincoteague, presiding. There was a short business session at which Dr. J. H. Ayres, appointed at the last meeting, read the following resolutions on the death of Dr. E. W. Robertson:

WHEREAS, it has pleased Almighty God to call from our roll the deceased, Dr. Edgar W. Robertson, of Onancock, Va., *be it resolved*,

That in the death of Dr. Robertson the Accomack County Medical Society has lost a loyal member, the sick a conscientious and faithful attendant, and this community a citizen of recognized worth and high ideals, and

That this appreciation be spread upon the minutes of this Society.

Drs. J. H. Ayres and J. W. Robertson were appointed a committee to draft suitable resolutions on the death of Dr. O. L. Powell, of Onancock. Dr. Robert P. Cooke, recently of Front Royal, Va., but now in charge of Ac-

*Case Report read before the fifty-sixth annual meeting of the Medical Society of Virginia, at Richmond, October 13-16, 1925.

comac County Health Unit, and the county nurse, were elected honorary members of the Society. It was voted to hold meetings quarterly in the future at which times papers will be read and matters of medical interest may be discussed. Drs. Ayres, DeCoromis and Edmonds were appointed a committee to arrange for a banquet or some social affair to be held at Accomac, in the near future. Dr. R. R. Nevitte, Temperanceville, was elected president; Dr. Rooker J. White, Keller, vice-president; and Dr. John W. Robertson, Onancock, was re-elected secretary-treasurer.

After the business meeting, addresses were made by Dr. Ennion G. Williams, State Health Commissioner, and Dr. Harry D. Grant, State Epidemiologist. Both spoke briefly of health work, especially as it interested Accomac County, and Dr. Williams referred to the value of an active County Medical Society to the State as well as to its members.

Nansemond County Medical Society Reorganizes.

On November 17th, about twenty Nansemond County doctors met in Suffolk and decided to reorganize and hold monthly meetings. For the present it is planned that these meetings shall be of the nature of a Journal Club. Dr. F. J. Morrison, Suffolk, was elected president, and Dr. C. F. Moriarty, head of the Nansemond County Health Unit, with headquarters at Suffolk, was elected secretary.

The Piedmont Medical Society

Held its regular semi-annual meeting at the Coffee Shop in Charlottesville, November 27, at which time supper was served those in attendance. Following routine business, papers were read by Drs. Cuthbert Tunstall, Harry T. Marshall and J. E. Wood, all of the University. Dr. Wylie C. Mason, Gordonsville, is president, and Dr. Lewis Holladay, Orange, secretary of this Society.

The Richmond Academy of Medicine,

Members of the Richmond Academy of Medicine, early in November, announced an increase in their fees. Under the new schedule, night visits between 11 P. M. and 8 A. M. will be charged at the rate of \$10 each; from 8 A. M. to 6 P. M. visits will be \$3; from 6 P. M. to 11 P. M., \$5; and the minimum charge for office visits \$2. Under the schedule, the minimum bill for emergency calls will be \$5 and for uncomplicated obstetrical cases the fee is \$50. These are to be effective at once.

The Truth About Medicine

In addition to the articles enumerated in our letter of September 26th, the following have been accepted: Lederle Antitoxin Laboratories

Concentrated Tetanus Antitoxin (Globulin)—Lederle.

Scarlet Fever Streptococcus Antitoxin—Lederle (Renamed and Concentrated.)

Radium Limited, U. S. A.

Saubermann Radium Emanation Activator, 100,000 Mache Units.

E. R. Squibb & Sons

Rabies Vaccine-Squibb Semple Method 14 Dose Treatment.

NEW AND NON-OFFICIAL REMEDIES

Protein S. M. A. (Acidulated).—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 Gm. contains approximately: protein (of milk), 35 Gm.; S. M. A. fat (consisting approximately of tallow oil, 0 to 10 per cent; coconut oil, 15 per cent; cacao butter, 20 per cent; cod-liver oil, 7.5 to 12.5 per cent; tallow 25 to 50 per cent), 22 Gm.; carbohydrate (lactose), 28 Gm.; ash, 6 Gm.; moisture, 2 Gm.; desiccated lemon juice, equivalent to 16.7 c.c. of fresh juice. The content of lactic acid is regulated so that when the substance is diluted according to directions the liquid will have a pH of 4.6. The use of protein S. M. A. (acidulated) is proposed as a means of checking diarrhea, in malnutrition and marasmus, and in the feeding of prematurely born infants needing a high caloric intake. Laboratory Products Co., Cleveland.

Bromeikon.—A brand of tetrabromophthalein sodium—N. N. R. (formerly called tetrabromophenolphthalein sodium) (New and Non-official Remedies, 1925, p. 141.) Bromeikon is supplied in bulk and in ampules of 5 Gm. Mallinckrodt Chemical Works, St. Louis.

Typhobacterin (New and Non-official Remedies, 1925, p. 363.)—It is also marketed in packages of thirty 1 c.c. vials (M193-5) (hospital size) being ten sets of three immunizing doses. H. K. Mulford Co., Philadelphia.

Normal Horse Serum (New and Non-official Remedies, 1925, p. 329.)—Marketed in packages of one syringe containing 10 c.c.; also in package of one vial containing 20 c.c. Eli Lilly & Co., Indianapolis.

Pertussis Vaccine.—A pertussis bacillus vaccine (New and Non-official Remedies, 1925, p. 353), marketed in package of four 1 c.c. vials; in single 5 c.c. vial packages; in single 20 c.c. vial packages; and in packages of four 1 c.c. vials. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., October 10, 1925, p. 1137.)

Schick Test—Gilliland.—A diphtheria immunity test (New and Non-official Remedies, 1925, p. 369), marketed in packages containing one vial of diphtheria toxin, the amount being sufficient for fifty tests. Gilliland Laboratories, Marietta, Pa.

Corpora Lutea Desiccated—P. D. & Co.—The dried corpora lutea of cattle and swine. For a discussion of the actions and uses, see Ovary, New and Non-official Remedies, 1925, p. 251. The product is supplied in capsules containing, five grains, and in tablets, containing respectively, two and five grains. Parke, Davis & Co., Detroit.

Streptococcus Vaccine—Lilly.—A streptococcus vaccine (New and Non-official Remedies, 1925, p. 350), marketed in single 5 c.c. vial packages and in single

20 c.c. vial packages. Eli Lilly & Co., Indianapolis.

Staphylococcus Vaccine—Lilly.—A staphylococcus vaccine (New and Non-official Remedies, 1925, p. 357), marketed in single 5 c.c. packages and in single 20 c.c. packages. Eli Lilly & Co., Indianapolis.

Staphylococcus Aureus Vaccine—Lilly.—A staphylococcus vaccine (New and Non-official Remedies, 1925, p. 357), marketed in single 5 c.c. vial packages and in single 20 c.c. packages. Eli Lilly & Co., Indianapolis.

Antistreptococcus Vaccine—Lilly.—An antistreptococcus vaccine (New and Non-official Remedies, 1925, p. 339), marketed in packages of one syringe containing 10 c.c.; in packages of one syringe containing 20 c.c.; in packages of one vial containing 10 c.c.; and in packages of one double ended vial containing 30 c.c. Eli Lilly & Co., Indianapolis.

Concentrated Tetanus Antitoxin (Globulin)—Lederle.—A tetanus antitoxin concentrated (New and Non-official Remedies, 1925, p. 332), also marketed in packages of one cylinder containing 10,000 units with gravity injecting outfit for intraspinal use. Lederle Antitoxin Laboratories, New York.

Pneumococcus Vaccine, Prophylactic—Lilly.—A pneumococcus vaccine (New and Non-official Remedies, 1925, p. 355), marketed in single 5 c.c. vial packages. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., October 17, 1925, p. 1223.)

Vaccine Virus—Lilly.—A vaccine virus (New and Non-official Remedies, 1925, p. 341), marketed in packages of one capillary tube and in packages of five capillary tubes. Eli Lilly & Co., Indianapolis.

Typhoid-Paratyphoid Bacterial Vaccine Immunizing (New and Non-official Remedies, 1925, p. 361).—This is also marketed in hospital size packages of ten complete immunizations. Gilliland Laboratories, Marietta, Pa.

Rabies Vaccine (Semple Method)—Squibb.—An anti-rabic vaccine (New and Non-official Remedies, 1925, p. 342) prepared according to the general method of David Semple (phenol killed). It is marketed in packages of fourteen syringes. E. R. Squibb & Sons, New York. (Jour. A. M. A., October 24, 1925, p. 1505.)

PROPAGANDA FOR REFORM

Calcium Therapy in Tuberculosis.—The theory that tuberculosis is accompanied by, and perhaps dependent upon, a demineralization, and especially a loss of calcium from the body, has not been supported by the best controlled investigations. There is no acceptable evidence that there is any decrease in the amount of calcium either in the blood or the tissues in tuberculosis. (Jour. A. M. A., October 3, 1925, p. 1082.)

The Aging of Natural Mineral Waters.—Recently completed studies indicate that certain iron compounds may undergo unique transformation on standing. It was demonstrated that some of the salts dissolved in the water as they come out of the deep interior ground are in a particularly "labile configuration." The still "active" iron ions have various properties in common with hemoglobin or blood iron. The inactive or "aged" iron salts show none of these properties. (Jour. A. M. A., October 10, 1925, p. 1139.)

Iron in Therapeutics.—It seems possible that much of the therapeutic uncertainty of iron administration may be cleared up by recent studies involving large numbers of nearly identical animals over long periods of time under uniform conditions, with respect to the effect of iron administration. It was found that *iron was stored in the liver or spleen*, but was not converted into hemoglobin. The experiments seem to show the futility of prescribing iron in

anemia. On the other hand, the efficiency of food iron seemed pronounced. (Jour. A. M. A., October 10, 1925, p. 1140.)

Adropsedema, A Recrudescence of Shot-gun Therapy.—Adropsedema is a "dropsy cure" of the Anascarcin type, marketed by the Van Seaton Chemical Company, Fort Worth and Chicago. It comes in the form of tablets which, according to a circular, contain in each tablet: Strophanthin 1-240 gr.; spartein sulphate, 1-64 gr.; "apocynin" 1-4 gr.; "ext. urguinea scillae" 1-5 gr.; "gelsemin" 1-8 gr.; "ext. sambucus" 1 gr.; ferrous carbonate 1-2 gr. Elsewhere the "formula" includes "cactus grandifolium 4 gtt.", "gelsemin" instead of "gelsemin," and "reduced iron" instead of ferrous carbonate. "cactus grandifolium 4 gtt." probably refers to some liquid preparation of *Cactus grandiflorus*. While the complexity of the "formula" makes it impossible to use this preparation intelligently, the advertising asks physicians to study the "formula" of this blunderbuss. The thoughtless and ill-considered use of this preparation is suggested by statements such as "Adropsedema does the work; what more do you want? When in suspense, prescribe Adropsedema." (Jour. A. M. A., October 10, 1925, p. 1152.)

Neurosine.—The Council on Pharmacy and Chemistry in 1915 reported that Neurosine (Dios Chemical Co.) is a shotgun nostrum which violates practically every principle of modern therapeutics. The manufacturers claim that each fluid ounce contains: "40 grains C. P. Potassium Bromide, 40 grains C. P. Ammonium Bromide, 40 grains C. P. Sodium Bromide, 1 grain C. P. Zinc Bromide, 32 grains Extract Lupuli, main part of Robinson's "Cure" was coarse sand, and this is confirmed by the report of the A. M. A. Chemical Laboratory. A physician has reported the .60 grains Extract Cannabis Indica, .075 grains Extract Belladonna, .075 grains Extract Henbane, 40 minims Extract Cascara Sagrada, .060 grains Oil Bitter Almonds, 5 per cent alcohol and Aromatic Bitters." Neurosine, therefore, contains 121 grains of bromid in each fluid ounce. The formula of Neurosine is, however, not featured by the promotor. The danger of administering such a preparation as Neurosine without knowing its bromid content is apparent. (Jour. A. M. A., October 10 (1925, p. 1155.)

Orargol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Orargol (Anglo-French Drug Company) is stated to be a colloidal suspension of silver and gold prepared electrically from an alloy composed of gold 10 per cent and silver 90 per cent. On the basis of the available evidence the Council declared Orargol inadmissible to New and Non-official Remedies because the claims made for it are unwarranted and because it is an unscientific mixture. (Jour. A. M. A., October 17, 1925, p. 1241.)

Rayminol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Rayminol (Doyle), according to its proprietors, the Phairmount Laboratories of Hackensack, N. J., is stated to be "a scientific union of liquid petrolatum, aromatized rhubarb and phenolphthalein (0.03 gm. to each 4.0) pancreatized." Rayminol, therefore, appears to be a preparation containing liquid petrolatum, phenolphthalein, a preparation of rhubarb, and a pancreatic preparation, all in undeclared amounts except the phenolphthalein which appears to be present in the proportion of 0.03 gm. per 4 c.c. Rayminol was found unacceptable for New and Non-official Remedies because it is a complex, irrational mixture of indefinite composition which is marketed under a nondescriptive name with unwarranted therapeutic claims and in a manner that fosters the

ill advised use of purgatives by the public. (Jour. A. M. A., October 17, 1925, p. 1241.)

Possible Danger of Poisoning From Mercurochrome.—Sufficient evidence has been published to show that mercurochrome causes little or no gastrointestinal disturbance until it has been taken in large doses for a week or more. In New and Non-official Remedies it is stated that no systemic effects have been observed following the local application of mercurochrome. This, together with the fact that the preparation is offered for lay use only in small packages of the solution, would seem to make the use of mercurochrome by the laity no more dangerous than that of tincture of iodine. (Jour. A. M. A., October 17, 1925, p. 1242.)

Asthmolysin.—According to the advertising, Asthmolysin is a German proprietary and is "a combination of the suprarenal and pituitary hormones in distinct proportion" which is prepared by a "special method." In the series of articles on glandular therapy published under the auspices of the Council on Pharmacy and Chemistry, the opinion was given that the use of pituitary in bronchial asthma is contraindicated. (Jour. A. M. A., October 27, 1925, p. 1243.)

Robinson's Pernicious Anemia Cure.—One W. A. Robinson, of Sisseton, South Dakota, has been exploiting an alleged cure for pernicious anemia during the past three or four years. His statements regarding the cause and cure of pernicious anemia prove him to be utterly ignorant of medicine. Robinson charges thirty dollars for a treatment. From letters received from physicians it seemed that the main part of Robinson's "cure" was coarse sand and this is confirmed by the report of the A. M. A. Chemical Laboratory. A physician has reported case of a patient suffering from pernicious anemia who had taken the Robinson treatment and who apparently died from hemorrhages caused by the sand which had been swallowed. (Jour. A. M. A., October 24, 1925, p. 1323.)

Tripp's Liquor Rheumatica.—During the past year there has been an extensive campaign on a nostrum known as "Dr. Tripp's Liquor Rheumatica" put out by a concern calling itself the Norwood Pharmaceutical Company. Before starting its newspaper campaign, the firm resorted to the old method of working the medical profession and physicians were circularized with an urge to use Liquor Rheumatica in cases of "chronic rheumatism." Regarding the composition, the circular addressed to physicians vaguely mentions potassium iodid, "phytolacca-rheuma"—whatever that may be—cimicifuga and calisaya and cinchona compound. The quantities of the drugs were not given. The "Liquor Rheumatica" now sold was analyzed by the A. M. A. Chemical Laboratory. From its examination the Laboratory concluded the preparation to be essentially a weak alcoholic solution of potassium iodid with a dash of cinchona alkaloid. There is no use for the exploitation of a mixture such as Liquor Rheumatica in the form of a "home remedy" for self-drugging. (Jour. A. M. A., October 31, 1925, p. 1418.)

Gly-So-Iodonate ("G. S. I.")—This product was refused admission to New and Non-official Remedies because it was exploited under a non-descriptive and misleading name and with a statement of composition not only chemically absurd, but obviously incorrect. Inquiry made among a number of hospitals and industrial concerns which, according to the advertising for Gly-So-Iodonate had used the preparation, revealed no enthusiastic users of "G. S. I." and showed that the exploiters were using some references as misleading as the formula for their nostrums. (Jour. A. M. A., October 31, 1925, p. 1420.)

Book Announcements

Diseases of Infants and Children. By HENRY DWIGHT CHAPIN, M. D., Emeritus Professor of Medicine (Diseases of Children) at the New York Post-Graduate Medical School and Hospital, Ex-President of American Pediatric Society, etc., and LAWRENCE THOMAS ROYSTER, M. D., Professor of Pediatrics and Head of the Pediatric Department of the University of Virginia. Fifth Revised Edition. New York. William Wood and Company. 1925. Octavo of 633 pages, freely illustrated. Cloth. Price, \$6.00.

Etude sur la Vieillesse et le Rajeunissement par la Greeffe. Par le DR. SERGE VORONOFF, Directeur du Laboratoire de Chirurgie Experimentale du College de France. Avec 35 planches hors texte. Paris. Librairie Octave Doin, Gaston Doin, Editeur, 8, Place de L'Odeon, 8. 1926.

The Therapy of Puerperal Fever. By Privatdozent DR. ROBERT KOEHLER, formerly assistant of Gynecological Department of the Krankenhaus Wieden. American Edition prepared by HUGO EHRENFEST, M. D., F. A. C. S., Associate in Obstetrics, Washington University School of Medicine, Obstetrician and Gynecologist of the Jewish Hospital, St. Louis, etc. St. Louis. C. V. Mosby Company. 1925. Octavo of 276 pages with 27 illustrations. Cloth. Price, \$4.00.

A Text-Book of Physiology. By WILLIAM D. ZOETHOUT, Ph.D., Professor of Physiology in the Chicago College of Dental Surgery (Loyola University) and in the Chicago Normal School of Physical Education. Second Edition. St. Louis. C. V. Mosby Company. 1925. 8vo. of 616 pages, illustrated. Cloth. Price, \$4.50.

Intravenous Therapy. Its Application in the Modern Practice of Medicine. By WALTON FOREST DUTTON, M. D., formerly Medical Director, Polyclinic and Medico-Chirurgical Hospitals, Graduate School of Medicine, University of Pennsylvania; Director Medical Research Laboratories, Amarillo, Texas, etc. Second Revised and Enlarged Edition. Philadelphia. F. A. Davis Company, Publishers, 1925. 8vo. of 594 pages. Illustrated with 64 halftones and line engravings, some in colors. Cloth. Price, \$6.00 net.

Insects and Disease of Man. By CARROLL FOX, M. D., Surgeon, U. S. Public Health Service; Lecturer on Medical Entomology to the Class of Student Officers, Hygienic Laboratory, Washington, D. C., etc. Philadelphia. P. Blakiston's Son and Company, 1012 Walnut Street. 1925. 8vo. of 349 + xii pages, with 92 illustrations. Cloth. Price \$4.00.

Submucous Endocapsular Tonsil Enucleation. With Discussion of the Evolution of Knowledge of the Tonsil as a Disease Producing Factor and Various Methods of Enucleation. Excerpts from the Clinics of CHARLES CONRAD MILLER, M. D. The Oak Press, 358 West Madison Street, Chicago. 1925. Small, 8vo. of 218 pages with some illustrations.

Applied Biochemistry. By WITHROW MORSE, Ph.D., Professor of Physiological Chemistry and Toxicology, Jefferson Medical College, Philadelphia. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 958 pages, with 257 illustrations. Cloth. Price, \$7.00 net.

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Editorial

Periodic Physical Examinations.

One need not take the trouble to state the reasons why persons should be examined for the detection of errors in habits, of physical imperfections, of dysfunction of organs, of obvious or lurking depots of infection, of beginning or advanced pathology. To physicians of all sorts, general and special, such a tabulation of reasons would be supererogation. All doctors agree to the fundamental need for early discovery of defects in habits of living, in imperfect physical construction, of dysfunction in digestive organs, in metabolism and elimination of acute or chronic infections, of the occurrence of pathologic changes in structures of the body in the layman or the doctor, himself. All too unfortunately physicians, themselves, wittingly or otherwise, become victims of advancing diseases, without making efforts at their discovery or eradication. Hence, it is not necessary to state reasons, for periodic examinations of the apparently healthy; but it is important to engage the interest of physicians in the subject, and to offer suggestions for the adoption of periodic examinations by general practitioners throughout our state, and to have the idea popularized among the people.

It is very certain that a plan for conducting the examination should be agreed upon. The limits of examinations are almost boundless; one can exhaust the subject by the institution of all the methods, physical or laboratory. Absurdity must be avoided in any plan, yet, all reasonable completeness must be followed in the examinations. In fact it is almost beyond

reasonableness to expect one to adopt a procedure of examinations with restrictions or limitations, when exigencies of investigations may demand wider and more extended efforts.

But it is true, within normal limits, that the periodical examinations of the supposedly healthy person, as well as persons having re-checking examinations on diseases previously diagnosed, may be conducted without a vast amount of elaborate or intricate laboratory study. From this complexity of diagnostic procedure the "health examination" must be spared, if it is to be widely adopted by the profession, or generally employed by the laity. So, the examination should be along the line of common sense and simplicity, at least, until discovery is made of possible disease demanding more intricate and searching procedure.

Before discussing what measures should be adopted by the profession to bring this need to the minds of the laity, it would seem important for general practitioners to think out a standardized plan of examination. When this is worked out and physicians have familiarized themselves with the details of the plan, perfecting themselves with that degree of expertness which will enable them to conduct the examinations, the ways and means for urging the laity to secure the examination may be wisely considered. Fortunately a plan of examination has been worked out under the auspices of the American Medical Association. In "The Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons," recently issued by the American Medical Association, one gets an idea of the plan.

METHOD

The history of the subject to be examined is very important. The questionnaire, which should be carefully filled out by the person, should be carefully considered by the examiner and supplementary inquiries be made on points suggested by the applicant's statements. The occupation, conditions of work, home surroundings, habits of eating, kind and quality of food taken daily, the manner and frequency of eating, the effects of food, the quantity of water taken daily, habits in the use of coffee, tea, alcohol, tobacco, and coca cola; sleep, whether restful or disturbed by dreams, whether morning headache, depression, or absence of hunger, occurrence of weakness or "goneness"

in the morning:—all enter into the background for the estimation of the degree of health of the individual. The history of infections—tonsillitis, toothache, rheumatism, pneumonia, influenza, typhoid fever, malaria, tuberculosis, scarlet fever, diphtheria, syphilis or gonorrhea, or other infections, form an important angle in the inquiry. The family history should not be neglected. The occurrence of illness and death in the family history may give a lead to a significant phase of the physical survey.

The physical examination should be conducted at the physician's office, at an appointed hour, preferably outside of the time given the sick, seeking professional advice and diagnosis. The subject should be stripped; in the case of females, a sheet may be employed in the interest of modesty and decency. The physical examination should begin with taking the height and weight, examination of the head; the neck; the chest; the abdomen and the extremities. The subject, in a standing posture, should be investigated as to muscle tone, gait, state of nutrition, condition of the skin, occurrence of glandular enlargement, the hands and feet, the genitals; in the sitting posture, the applicant is in good position for testing eyes, hearing, examining condition of the teeth, tonsils, nose and ears, glandular enlargement in the neck, pulsations of the vessels in the neck. The chest should be studied by inspection, percussion, palpation, and auscultation. The heart should be gone over, observing the rate, the sounds, the presence of murmurs and the rhythm and so on. The lungs should be observed for adventitious sounds. The pleurae may be examined for friction rub. In the recumbent position the heart should be gone over again, and the abdomen should be explored manually to discover tenderness, enlargement or displacement of organs. The liver and spleen should especially elicit one's interest, as well as the kidneys. The ovaries in the female and the prostate in the elderly male should not be overlooked. The blood pressure should always be taken. The temperature, the pulse rate before and after exercise, the expansion of the chest should also be noticed. Examination of the urine should always be done, particularly looking for albumen, sugar and casts, noticing the specific gravity and acidity. The reflexes of the body should be gone over; the station and the gait should be noted.

EQUIPMENT

For such an examination the following simple instruments will be needed—scales, tape measure, tongue depressor, spot light or reflector, stethoscope, blood pressure instrument, speculum for the nose and ears, rubber gloves, urine testing outfit, vision chart, and flesh pencil. If physical findings suggest blood study, sputum examination, Wassermann test, spinal puncture, stomach test, etc., these laboratory studies should be made.

SOME DETAILS

Overweight and underweight must be explained. A standard table of weight and height, at varying age for male and female, is easily obtained, and should be consulted. Excessive overweight is a deformity and a menace. The causes should be determined. Habits of the individual in the kind and quantity of food and drink, the disturbance of glands of internal secretion, and the basal metabolic rate should be known, together with the patient's habits of work and exercise. So, with the marked underweight, an explanation should be arrived at: whether there is a lurking infection, such as tuberculosis, without obtrusive signs; diabetes, or Bright's disease; digestive disturbance, or pathology in the gastro-intestinal tract; insufficient food, illy balanced rations, hypothyroidism, or what not. An explanation for extreme overweight and underweight should be sought.

The heart action and the blood pressure should receive careful consideration. The heart should be examined in several positions, especially after brief exercise. Note should be made of the apex beat, apparent size of heart, area of cardiac impact, the force and character of heart systoles and the rate and rhythm of the heart before and after exercise. Auscultation should give the character of the first and second sounds, the occurrence of murmur in the right or left heart, and the quality and tone of the heart sounds.

The pulse should be noted in sitting, standing, and prone positions, and also after exercise. Thirty hops on each foot and a rest of two minutes, with return of a normal rate by the pulse, enables one to feel that there is a good heart muscle reserve. The increase of forty to sixty beats, after exercise, is expected but in a normal person the pulse should return to its former rate after two minutes of rest.

Blood pressure should be taken by the auscultatory method, and systolic and diastolic readings should be made. One should remember that eating and exercise influence the systolic blood pressure, while diastolic pressure is less affected by these conditions. One should also remember that blood pressure readings are not to be relied upon alone. The writer recalls a patient between fifty and sixty years of age in whom the blood pressure readings never exceeded one hundred and sixty for several years before apoplexy. There are a small number of patients now under observation who for months, one case for three years, have been averaging a systolic pressure around two hundred. There is one case with the pressure between two hundred and fifty and three hundred for many years. So one can not rely upon readings, still these must be taken into consideration in relation to the physical and laboratory findings, as well as the subjective symptoms elicited. Low blood pressure is of real significance and should not be overlooked; not that, in every case, low blood pressure readings indicate a serious condition, but rather that a low blood pressure reading indicates several possible significant clinical entities of importance. One may insist upon a case of hypertension, or one of hypotension, pursuing a definite course of treatment, and also upon a regular monthly consultation for checking up the condition of the patient.

Focal infection in relation to disease should necessarily assume a dominant position in such examinations as are here receiving consideration. Periodic examinations for the discovery of oral focal infections are extremely important. Why should pus pockets and suppuration be tolerated by the patient, and by examiners? One may be very strong, very careful in eating, very robust, and careful in exercise, but, with chronic suppurating foci in the mouth, or elsewhere, be really not a strong man.

Lung examination is also of obvious importance. In connection with the history of acute bronchitis or frequent colds and loss of weight, the examination of the lungs should be carefully made with a stethoscope. The examination should be on the bare chest with the patient sitting on a stool facing the examiner. The chest, under quiet and deep breathing, should be inspected, palpated, percussed, and auscultated. The stethoscope should be used carefully above the third rib in front and above

the spine of the scapula. One should carefully listen to the inspiratory and expiratory note and elicit, if present, signs of moisture. Such conditions should engage the interest of the physician. The suspicion of tuberculosis must be run down to confirmation or disproof. Sputum, X-ray examinations and a number of careful physical examinations should be made before reaching a diagnosis under incipient signs. Examination of the urine should invariably be made in all periodic surveys of the body. By this one may judge of the state of the kidneys as well as other organs of the body. Bright's disease and diabetes may by this be brought to light, before obtrusive symptoms appear. The presence of pus and blood in urine may point to physical abnormalities of the urinary tract or in the body, previously unsuspected. The specific gravity of the urine may indicate the need for more drinking of water. The trace of sugar in the urine may suggest hyper- or hypoglycemia. Color, deposits, blood, pus, specific growth, presence of albumin or sugar, quantity of passes in twenty-four hours, frequency of urination, and microscopic observation, are simple but extremely significant observations for physicians to make.

Feces require some consideration in every examination. An inquiry should always be made of the patient as to the characteristics, quantity, color, and quality of the feces. In the light of a history of disturbance of the digestive tract, microscopic study should be made.

"SELL" THE PERIODIC EXAMINATION IDEA TO THE LAITY

One should not use the term "sell" in dealing with a problem of preventive medicine, which intrinsically is as remote from the domain of business as can be. But the term "sell" is employed for its present-day meaning, the act of securing the adoption of an idea and the putting of the same in sustained practice. That is the crux of the problem. Physicians may agree that this is an excellent idea. But to rely upon the slow and inadequate method of awaiting the results of widespread application to come through the individual efforts of physicians among clientele coming daily to the office for consultation, is an altogether inadequate plan. The idea cannot be "sold" by this plan. Agencies outside, and in addition to the efforts of the physicians, must be employed

in the campaign for widespread adoption of the periodic examination. Besides, before these outside agencies shall be sent to work, it should be clearly understood that the movement should absolutely be kept free from a possibility of floundering upon the shoals and rocks of commercialism or social medicine. The basic protection of all health concerns in America today depends upon the maintenance of the dignity, rights, and full protection of the family doctor. When any plan is adopted that impairs the dignity, rights and usefulness of the family doctor, or general practitioners, if you please, such a plan strikes a serious blow at the most potent agency of preventive medicine today.

Then it seems that the agency to put this plan across with the laity is the Board of Public Health, the daily papers, and the popular magazines. The doctor himself may do his bit also, but the big end of the campaign must be conducted by agencies outside. So, finally, editorially, we conclude our comment by saying that it is largely up to your Boards of Health and agencies of organized medicine to popularize the idea.

In connection with the subject discussed above, attention is called to a "Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons," published by the American Medical Association, upon which the above comments are largely based. It embodies suggestions for the conduct of the physical examination and also for the hygienic advice to be given to the health client.

This manual is an elaboration of the original report presented to the House of Delegates in 1923, and prepared by a committee of which Dr. Haven Emerson was chairman, and Drs. Rock Sleyster, Edgar A. Hines, Tom B. Throckmorton, Walter F. Donaldson and Olin West, of the group of Secretaries of the State Medical Societies, were the other members.

The additional material has been drafted by a special committee consisting of Drs. Isaac Abt, Joseph A. Capps, Charles A. Elliott, Haven Emerson, Joseph L. Miller, Alfred E. Shipley, and Alec N. Thompson, Dr. Anna Mann Richardson and Dr. H. Douglas Singer, of Chicago.

The manual is for sale by the American Medical Association at the following prices: Single copy, \$0.20; 5 copies \$0.75; 10 copies, \$1.25; 25 copies, \$2.50; 50 copies, \$4.50; 100

copies, \$8.50; 500 copies, \$40, and 1,000 copies, \$80.

In order to promote the wide distribution and use of this manual, it is hoped that the various county medical societies will arrange to secure a sufficient number to supply each member of every society with a copy.

The following subjects listed in the Table of Contents will indicate the scope and usefulness of the Manual:

Introduction—Origin of Periodic Health Examination Movement, Action of House of Delegates, Necessity for Examinations, Examinations Reveal Defects, Physicians Need to Teach Care of the Body, Adult Instruction the Present Need.
History of the Applicant—Form A of the Blank Discussed—History of Applicant, Details of Personal History.

Physical Examination—Form B of the Blank—The Medical Health Examination, Equipment and Facilities, Divisions of Form B, Details of Physical Examination, Height, Weight, Weight Charts, Temperature, Pulse, Blood Pressure, Hearing, Vision, Urine, Feces, Other Possible Laboratory Tests, Posture, Nutrition, Skin, Glands, Breast, Chest, Hands, Male Genitals, Hernia, Legs, Romberg Sign, Hair, Eyes, Teeth and Gums, Tongue, Ears, Heart, Respiratory System, Nose, Tonsils and Pharynx, Lungs, Tuberculosis, Abdomen, Girth Measurements, Reflexes and Sensation, Liver, Spleen, Kidneys, Female Genitals, Rectum, Special Groups, Industrial Hazards, Summary of Findings.

Hygienic Advice—*Health Prescriptions*—Two Illustrative Cases, Examples of Prescriptions, Printed Instructions, Study of Community Resources for Health, Overweight and Underweight, Overweight, Method of Approach to the Individual, General Principles in Prescribing Diet, Individual Clients, Prescribing the Diet, Opinions about Water Differ, The Part Exercise Plays, Underweight, Poverty not the Cause, Diet in Underweight, Exercise is Secondary to Rest, Constipation, Influence of Muscle Tone, Habits of Eating and Drinking, The Cathartic and Enema Habit, Suggested Diet Prescriptions, Muscle Tone and Posture, How to Judge Posture, Muscle Tone, The Skin and Hair, The Extremities, Blood Pressure, Difficulty in Sleeping, Nervousness, Female Genitalia, Conclusion.

Physicians interested in this question and wishing to formulate a system for personal use in practice, may employ the accompanying blank, prepared and published by the American Medical Association as a guide in the preparation of history and examination forms.

A. G. B., JR.

About Blood.

Beginning soon after the Homeric period observers began to note that disease followed, what we might consider, natural laws in its development and course. The idea held up to then that disease was of demonic origin was now no longer tenable. Instead, the causes must be sought in the body fluids, and about

500 B. C. we find Hippocrates, with his school, presenting the theory of the "four humors." Accordingly it was reckoned that an individual was normal or not according to the balance in his body of the fluids—blood, phlegm, yellow bile and black bile. The old nomenclature and theory of this school have curiously enough been handed down to us in the terms yet used "sanguine," "phlegmatic," "bilious," and "melancholic," supposedly indicating a preponderance of blood, phlegm, yellow bile or black bile.

As crude as we find this theory, it had very notable merit in that it fixed the study of disease processes upon natural, rather than unnatural, causes and was the early beginning of the centuries of study and investigation which have yielded our present day medicine, which, although unfinished, is beginning to assume certain definiteness and attributes of the scientific. Their accomplishments, with efforts handicapped by lack of exact and precise instruments of scrutiny, are an inspiration and a foundation. Science, as we know, includes all things, but from our interests as practitioners of medicine we naturally expect to enter this circle through a study of the body. What portion or tissue could be more important for this than blood—the nutritive and purifier of the body?

Perhaps, if we carried a perfectly clear idea of normal values in volume, cytology and chemistry of this tissue, we would wear better lenses through which we could see the interesting and important phases of its diagnostic and prognostic aid.

The blood is of mesodermic origin, and is a form of connective tissue in which the cells are never fixed and the intercellular substance is fluid. Certain columns of cells in the embryo, designated to become blood vessels, early show a loosening of their central cells, and these cells become floaters at first, hemoglobin free and nucleated. Later, they begin to show hemoglobin, are very large, and constitute what we know as megaloblasts. They multiply at this period in the blood stream by mitosis and are soon joined by smaller cells of endothelial origin. The endothelial cells, forming the yolk sac, give off a kind of large, granular, nucleated cell, larger than megaloblasts, known as megakaryocytes, which soon fragment and form platelets.

During the first month the red cells are nu-

cleated and gradually by the end of the third month a majority have lost their nuclei.

The leukocytes appear in the blood during the second month, and their origin is probably in the lymph nodes, spleen, liver and bone marrow. And while in all mammals we normally have one blood forming organ, it is interesting and important to note that under great stress blood generation is reassumed in these fetal blood-forming tissues.

It seems well to carry a small amount of the embryology of blood in order that we may recognize that the presence of embryonal cells in the circulation indicate that the blood is being rushed into place before it has time to mature and this in turn bespeaks an unusual drain—either abnormal blood loss or destruction.

In adult life we find the red cells numbering from 4,000,000 to 6,000,000 per cu. m. m., about 7 microns in diameter, and biconcave, non-nucleated and staining evenly with acid stains. There should be little variation in size, shape or staining.

It is customary for cytologists to report granulation, polychromatosis, anisocytosis, poikilocytosis and nucleation.

The amount of coloring in each red cell is determined by dividing the per cent normal of hemoglobin by the per cent of the normal number of red cells present. The value is normal at 1, but varies considerably with the different anemias. An increase generally suggests pernicious anemia while in secondary anemias we find a decrease. In chlorosis and leukemia hemoglobin indices are below normal.

The determination of hemoglobin content seems to have been one of the earliest efforts in blood chemistry, and it is somewhat of a surprise in going over the standards used to find that they are and have been largely empirical, individual and greatly at variance. Of the older instruments, Fleischman-Miescher used actual percentages of hemoglobin. Sahli chose 17.2 gms. per 100 c.c. of blood as standard. Haldane employed as a standard of 100 per cent a 1 per cent solution of blood having an oxygen capacity of 18.5 per cent. Such a blood contains approximately 14 gms. per 100 c.c. Haden uses 15.83 gms. per 100 as standard.

Williamson and Newcomer have probably done the best work on this, and after very careful analyses Williamson determines the actual

hemoglobin content of male blood as 16.92 gms. per 100 c.c. of blood and female as 15.83 gms. per 100. Newcomer, adopting this as standard, has produced a permanent colored glass disc which is used in a colorimeter. He also, in order to call attention to the errors in past estimations, suggests reporting the findings as gms. per 100. But for the time, at least, it seems wise to use both gms. per 100 c.c. and percentages in these reports in order to avoid confusion.

There are slight age variations with which the pediatrician should familiarize himself. Infants at birth—23.25 gms.; infants at the end of the third month—14 gms.

There is a decline in both male and female hemoglobin content after sixty years of age.

In most—not all—cases showing decreased hemoglobin, there exists a diminished number of red cells per volume of blood. The decrease in the number of cells and the normal hemoglobin furnish the index to the severity of the anemia. In case of hemorrhage a sudden reduction of red cells to 100,000, or less, generally terminates fatally. In leukemias the red cell count is generally not markedly reduced. Toxins of specific fevers, acute pyogenic infections and malignancy cause reductions.

The companion cells of the erythrocytes or the leukocytes have been studied simultaneously with them. These cells normally number 8,000 to 10,000 per cu. m.m., and vary in total and percentages both physiologically and pathologically.

Physiologically, they increase in digestion, exercise, at altitudes, in infants (first week to 15,000), and bathing.

Pathologically they increase in pyogenic infection, malignant tumors, post-hemorrhagic conditions, drugs (turpentine, camphor, peppermint, quinine, ethereal oils), shock (mental and physical), following protein injections, anemias (splenic and leukemic), and measles (before eruption).

They decrease in typhoid fever, tuberculosis, malnutrition, intoxications from heavy metals, narcotics and alcohol, in measles (following eruption) and influenza.

The percentages of leucocytes should be approximately normal under two years at:

Polymorphonuclear Neutrophiles	40	-60	%
Small Lymphocytes	40	-60	%
Large Lymphocytes	4	-10	%

Transitionals5	-1	%
Eosinophiles	1	-2	%
Basophiles5	%

Above two years, the percentage gradually changes until by about eleven years it is within adult normals.

Polys.	65	-70	%
Small Lymphs.	20	-26	%
Large Lymphs.	4	-8	%
Eosinophiles	1	-2	%
Basophiles5	%

In most cases of acute infections and inflammatory conditions the polymorphonuclear neutrophiles increase and this increase is generally parallel to the temperature increase. However, infections of influenza, tuberculosis, typhoid and malaria do not cause a polymorphonuclear neutrophilosis.

The post-hemorrhagic leukocytosis is a part of the general rushing into the blood stream of new blood and is not considered a body reaction but mechanical. The mixed leukocytosis in which both granular and lymphocytic elements are increased is seen in the leukemias where myelocytes are abundant.

Lymphocytosis occurs in poorly nourished children, with whooping cough, gastro-intestinal disturbances, cervical adenitis, splenic tumors, lymphatic leukemia, Hodgkin's disease.

Eosinophilia occurs in spleno-myelogenous leukemia, sarcoma of the bone marrow, osteomyelitis, intestinal parasites, after extirpation of the spleen, bronchial asthma, emphysema, skin diseases (especially those produced by toxic agents), myalgias, chronic gonorrheal infections and trichinosis.

Blood platelets should number 225,000 to 350,000 per cu. m.m. No facts of clinical importance have as yet been forthcoming about the platelets.

BLOOD CHEMISTRY

The detailed study of cells gave little light upon metabolic conditions and it has remained for American workers using American methods and apparatus during the last ten years to make wonderful progress in diagnosis, prognosis and therapeutics of the metabolic conditions. There is now a definite foundation in blood chemistry which is of distinct assistance to the internist and surgeon, the urologist, the obstetrician and pediatrician.

Most recently, interesting blood volume work, by using vital red and colorimetric

methods, has determined that blood volume is 8.8 per cent body weight instead of 7 per cent as formerly used thus making our fraction 1/11 instead of 1/13 of body weight.

Samples of blood for blood chemistry should be taken from the venous and not the arterial or capillary circulation; unless well iced the sugar determination is diminished too much to be an index after 24 hours of collection.

For all determinations except blood calcium, potassium oxalate is used as the anticoagulant and it should be in the proportion of 20 mgs. to each 10 c.c. of blood. The blood should be actively agitated after collection to insure thorough mixing and prevention of clotting. When calcium is to be determined, potassium citrate is used to prevent clotting. The length of time after meals has a bearing on blood chemistry findings and samples are most re-

liable when taken in the morning before breakfast.

Normals have been practically established and for venous blood the following table shows these and variations which may be of interest to those working in special lines:

In generalization, we can remember that the ease of excretion of creatinine, uric acid and urea through the kidney is in the order in which they are named and that we have a more serious condition existing where the creatinine is held in the blood than where the urea is held in.

REFERENCES.

Practical Chemical Analysis of Blood. Myers.
Clinical Diagnosis by Laboratory Methods. Todd.
Nelsen's Loose Leaf Living Medicine.
Oxford Loose Leaf Medicine.
Journals A. M. A.
Classical Bacteriology, Blood Work and Parasitology.
Stitt.

J. O. F., JR.

(In this Table, "-" is used to indicate "up to", not minus)

	Nonprotein Nitrogen	Urea Nitrogen	Uric Acid	Creatinine	Sugar	Cholesterol	CO ₂ Plasma	Chlorides
Normal Blood.....	25-40mgs.	10-20	2- 3	1- 2	90-120	167-255	53-77	450-500
For Internist & Surgeon								
Renal diabetes.....					80-120			-400
Diabetes mellitus.....			4- 10	2- 4	-400	-800	10-50	
Nephritis:								
Acute.....		-100	5- 10	2- 6	-180			-600
Early Interstitial.....	- 50	- 37	- 12	- 4	-150			-600
Late Interstitial.....	-350	-300	- 27	- 70	-300	-300	12- 40	12- 40
Chronic Diffuse.....		-230	- 10	- 15	-250	-900	- 30	-600
Uremia.....	90-350	-300		- 4				
Gout.....			4- 10					
Hyperthyroid.....		Inc.			Inc.	- 80		
Cholethiasis.....						130-300		
Bichloride Poisoning.....	-370	-300	- 36	- 35	-200	- 35	- 25	-114
Pneumonia.....		- 53	- 18	- 3.5	-180		- 33	Dec.
Pernicious Anemia.....	-110	- 75	- 10	- 3	-300	- 60		-600
For Urologist								
Prostatics.....	Inc.	- 30	3- 9	1- 5	-160			
Bladder Neoplasms.....		- 30						
For Obstetrician								
Pregnancy.....	Dec.	Dec.						
Hyperemesis.....			- 5					
Eclampsia.....	25- 45	- 25	- 8	- 3		Inc.	43- 58	Inc.
For Pediatrician								
Acidosis.....							Dec.	
Tetany.....	Calcium	reduced	below 3.7 mgs.	per 100 c.c. of blood.				

News Notes

Christmas Greetings

to All our Readers

and

Best Wishes for a Happy and Prosperous 1926.

The Seaboard Medical Association of Virginia and North Carolina

Held its thirtieth annual meeting and clinical session at Norfolk, Va., December 1, 2 and 3, with Dr. R. L. Payne, Norfolk, president, in the chair. The meeting was well attended and many interesting papers were read. The entertainments included a luncheon, the president's reception and an oyster roast at Cape Henry.

It was decided to meet next year in New Bern, N. C., and the following officers were elected: President, Dr. George A. Caton, New Bern, N. C.; vice-presidents, Drs. R. M. Cox, Portsmouth; Zenas Fearing, Elizabeth City, N. C.; W. P. McDowell, Norfolk; and David T. Tayloe, Jr., Washington, N. C.; treasurer, Dr. Israel Brown, Norfolk, succeeding Dr. Caton; secretary, Dr. Clarence Porter Jones (re-elected), Newport News.

Married.

Dr. Kenneth Dawson Graves, of Pearisburg, Va., and Miss Margaret Stringfellow Burwell, of Roanoke, Va., November 4.

Dr. Frank E. Daves, Danville, Va., and Miss Adelaide Simpson Bradley, October 12, 1925.

Dr. Robert Whitehead, Victoria, Va., and Miss Elizabeth Ford Eubank, of Keysville, Va., in November.

Dr. Lyle Steele Booker and Miss Katherine Helen Anrheim, both of Durham, N. C., November 10.

Dr. Garnette Wright Johnson, Danville, Va., and Miss Addie Cox, of Ridgeway, Va., November 7.

The Southern Medical Association

Held one of the best meetings of its history in Dallas, November 9-12, Dr. Stewart R. Roberts, of Atlanta, presiding. There was a registered attendance of about 2,200 physicians. All of the sections did good work and this was truly a "feast of reason and a flow of soul." Atlanta, Ga., was selected as the 1926 convention city, the meeting to be held the third week in November. Dr. C. C. Bass, of New Orleans, was elected president, Dr. O. M. Marchman, of Dallas, first vice-president. Dr. M. Y. Dabney, of Birmingham, Ala., was re-elected editor of the Association's journal and Mr. C. P. Loran continues as secretary-manager of the Association.

Dr. Wm. F. Matthews,

Of the class of '24, Medical College of Virginia, after completing his internship at St. Francis Hospital, Jersey City, N. J., is now at New York Foundling Hospital, New York City.

Dr. R. E. Booker,

Lottsburg, Va., was a recent visitor at Arvonnia and in Richmond, Va.

Dr. and Mrs. Lawrence H. Hoover

Have returned to their home in Clarksville, Va., after a short visit to Richmond.

Dr. P. K. Graybill,

Fincastle, Va., left the middle of November for Phoenix, Arizona, where he expects to spend sometime on account of his health. As a member of the Executive Council of the State Society from the Tenth District, he has designated Dr. M. T. McCulloch, of Troutville, Va., to represent that District in his absence.

Dr. G. W. Brown,

Superintendent of Eastern State Hospital, Williamsburg, Va., has recovered from a recent illness.

Dr. P. R. Fox,

Of the class of '23, Medical College of Virginia, has recently moved from Bramwell, W. Va., to McComas, W. Va.

Dr. George C. Snead,

Formerly of Trammel, Va., has now located at Bristol, Tenn., with offices in Interstate Building. He is limiting his practice to pediatrics.

The Annual Conference of Secretaries of Constituent State Medical Associations

Was held at the headquarters of the American Medical Association in Chicago, November 20 and 21. To this conference were invited editors of the State medical journals, as well as the secretaries of the State medical associations, and many subjects were discussed which overlapped to such an extent that they were of interest to both of these officers.

Although there was a discussion of many problems which affect the State associations, perhaps "Periodic Examinations of the Apparently Healthy," by the family physician, attracted more attention than any one subject. Two short sessions were given over to this timely topic, a practical demonstration being made.

Dr. P. D. Lipscomb,

Richmond, has been appointed assistant surgeon-general on the staff of the First Brigade, Virginia Division, United Confederate Veterans.

Dr. F. H. Smith,

Abingdon, Va., who was nominated by the Medical Society of Virginia as a member of the State Board of Medical Examiners from the Ninth Congressional District, has been appointed by the Governor to fill the vacancy for the unexpired term of the late Dr. W. W. Chaffin.

The Xmas Seal Sale Is On.

Buy them and use them on your Xmas mail! Last year, over \$4,200,000 was raised from the Seal Sale in the United States, Virginia's part being \$57,463.44. This money was used for free tuberculosis clinics, nurses, and for sanatorium treatment and preventive work.

Do you know that the Xmas Seal Sale idea originated with a postal clerk in Denmark, on Christmas Eve, in 1903? His suggestion took well and resulted in raising money in a short time for a children's tuberculosis hospital in that country. In 1907, the plan was used for the first time in this country in the State of Delaware, and resulted in raising \$1,000 to pay on the site of the first tuberculosis sanatorium in that State. Largely as a result of the Xmas Seal sales, the death rate from tuberculosis has been reduced 50 per cent in twenty years. But there is still work to be done. Get busy before it is too late to help this year.

Dr. D. L. Kinsolving,

Abingdon, Va., has been appointed a member of the Washington County, Va., Board of Health, *vice* Dr. T. D. Hutton, who died recently.

The Medical Society of Virginia, Maryland and District of Columbia

Held its regular semi-annual meeting at Raleigh Hotel, Washington, D. C., November 18, under presidency of Dr. J. W. Bird, of Sandy Spring, Md. Dr. Jos. D. Rogers, Washington, is secretary. Following an interesting scientific program, luncheon was tendered the members and time was given for every one to have a good time before returning home.

Dr. A. S. Brinkley

Has been elected vice-president of the University Club of Richmond.

Dr. W. C. Akers,

Of Stuart, Va., has recently opened in that place a private hospital which contains sixteen beds. It will be known as the Stuart Hospital and is located on Main Street west of the Courthouse.

Dr. W. C. Harmon

Has returned to his home at Dolphin, Va., after being a patient in a Richmond hospital.

Montana Saves Mothers and Babies.

Lower infant and maternal mortality rates for Montana are shown in a health review published lately by the Montana Department of Health. In 1923 the infant death rate was

71.8 and in 1924, 65.8. The maternal mortality rate dropped from 7.5 in 1923 to 7.0 in 1924.

Accident Insurance for School Children, Switzerland.

Accident insurance for public school children is to be provided by the Government of Zurich, Switzerland, as has already been done in Bern and Bazelland. At present 150 communities in Zurich are providing this insurance paying an average of 1,000 francs in case of accidental death, 5,000 in case of disability, and 3 francs a day for medical treatment.

American Board of Otolaryngology

An examination was held by the American Board of Otolaryngology on October 19, 1925, at the Cook County Hospital, Chicago, with the following result:

Passed	120
Failed	23

Total Examined143

The next examination will be held in Dallas, Texas on April 19, 1926. Applications may be secured from the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Mo.

Commander J. B. Mears, M. C., U. S. N.,

Has been transferred from the Naval Hospital, at Mare Island, California, to the U. S. Naval Hospital, Canacao, P. I. In spite of his many wanderings, Dr. Mears keeps up his affiliation with his native—the Virginia State Medical Society.

District of Columbia Druggists Urge Support of Venereal Disease Control Law.

That druggists should no more attempt to treat the venereal diseases than they should handle smallpox, typhoid, diphtheria, or similar ailments is the view expressed by the Legislative Committee of the District of Columbia Retail Druggists' Association in a circular recently issued by the committee to members of the Association. "Druggists must realize," says the committee, "that efforts of the public health authorities have placed venereal diseases in the same category as smallpox, diphtheria, typhoid, yellow fever and other, more or less, controllable diseases." Attention is directed to the venereal disease control law for the District of Columbia enacted by Congress in February, 1925, and the druggists of the District are urged to co-operate with the local

health department and physicians in making effective the provisions of the law.

Deaths Due to Syphilis in France.

Twenty thousand infant deaths, 40,000 abortions and 80,000 deaths among adults is the toll exacted by syphilis in France each year, according to the Minister of Labor, Hygiene and Social Welfare as reported in a recent number of "*The Lancet*" (London). The government is undertaking a campaign of public enlightenment and is instituting preventive measures for which 4,000,000 francs are appropriated annually. The Minister states that progress is taking place and points to the fact that syphilis is no longer regarded as a disease to be hushed up.

Dr. W. O. Poindexter,

Newport News, Va., narrowly escaped death or serious injury, last month, when his automobile stalled on the railroad tracks near that place. The physician jumped from his car just before it was struck and demolished by a freight train which crashed into it.

Dr. R. S. Spilman,

Medical director of the Virginia Military Institute, Lexington, has been granted a leave of absence for several months, on account of his health. Dr. Spilman was gassed during the World War and, as a result, has been under treatment several times.

Hughes Memorial Hospital.

Early last month, the cornerstone of the Hughes Memorial Hospital was laid by the Virginia Grand Lodge of Masons. This hospital was made possible by the \$250,000 bequest of the late John E. Hughes, of Danville. The hospital, when completed, will represent an investment of about \$400,000. Work is already well under way.

Association of American Medical Colleges.

At the meeting of this Association held recently in Charleston, S. C., Dr. Hugh Cabot, Ann Arbor, Mich., was elected president, Dr. David L. Edsall, Boston, vice-president, and Dr. Fred C. Zapffe, Chicago, secretary. The next annual meeting will be held in Cleveland, Ohio, in October 1926.

Dr. H. O. Bell,

Who returned to Virginia in the early Fall, after completing a post-graduate course at New York Nursery and Child's Hospital, is now located at Salem, Virginia, where he is engaged in general practice.

Dr. Osler's Challenge to Anti-Vaccinationists.

In response to a letter sent out from the office of the Virginia State Health Commissioner, Dr. A. M. Showalter, of Christiansburg, Va., recently replied that, though he had vaccinated several thousand people in the last eighteen years, he had never yet seen any dangerous or ill effects from vaccination. He further stated that he thought the famous challenge issued by Sir William Osler to the anti-vaccinationists of England a number of years ago (which we append herewith from the July, 1925 issue of *Southern Medicine and Surgery*), would readily apply to the present day.

"I do not see how any one who has gone through epidemics as I have, or who is familiar with the history of the subject, and who has any capacity left for clear judgment, can doubt its value. Some months ago I was twitted by the editor of the *Journal of the Anti-Vaccination League* for a 'curious silence' on this subject. I would like to issue a Mt. Carmel-like challenge to any ten unvaccinated priests of Baal. I will go into the next severe epidemic with ten selected vaccinated persons and ten selected unvaccinated persons—I should prefer to choose for the latter three members of parliament, three anti-vaccination doctors (if they could be found), and four anti-vaccination propagandists. And I make this promise—neither to jeer nor to jibe when they catch the disease, but to look after them as brothers, and for four or five who are certain to die, I will try and arrange the funerals with all the pomp and ceremony of an anti-vaccination demonstration."

It might be added that this challenge was never taken up by those to whom it was addressed.

Dr. John K. Shumate,

Recently of Salem, Va., and later at Catawba Sanatorium, is now at Nopeming Sanatorium, Nopeming, Minnesota.

Dr. J. B. Wingfield

Has returned to his home at Clarksburg, W. Va., after spending six months on his farm in Fairfax County, Va. Dr. Winfield keeps up membership in the Medical Society of Virginia and has many friends in this State, being an alumnus of the former University College of Medicine of the class of '97.

The U. S. Civil Service Commission,

Washington, D. C., announces the following open competitive examinations:

Junior Medical Officer, assistant medical officer, associate medical officer, medical officer and senior medical officer, applications to be rated as received until December 30;

Graduate nurse and graduate nurse (visit-

ing duty), applications to be rated as received until December 30;

Social worker (psychiatric), receipt of applications to close December 29;

Under scientific helper, receipt of applications to close December 26.

Popular Health Magazine.

The December issue of *Hygeia*, the popular health magazine published by the American Medical Association, seems, if possible, to contain more than usual of interest for the layman with an inquiring turn of mind. This magazine always presents medical truths in a wholesome way. Why not order it for your patients for the coming year? For it seems that the more people know of themselves, the more readily they come to the family physician for examination and treatment.

Dr. and Mrs. W. W. Bennett,

Blackstone, Va., were visitors in Richmond, the latter part of November.

Farmville to Have Large Hospital.

The Commonwealth Fund, of New York, a Foundation which proposes to help in erecting and equipping hospitals in different parts of the United States, has offered to contribute \$120,000 on a \$180,000 hospital in Farmville, Va., if the other third of the amount is raised in the district of which Farmville is the center, with a radius of thirty-five miles. A capacity of forty beds is being planned. The committees have option on an acreage on the outskirts of Farmville. It is expected the contract will be let about February.

Civic organizations in Farmville have taken up the work of putting over this project and are working in conjunction with a committee from the Prince Edward-Cumberland Medical Society.

Dr. J. H. Hiden

Has returned to his home at Pungoteague, Va., after a two weeks' hunting trip in Lunenburg County, Va.

The Fourth District (N. C.) Medical Society,

At its regular meeting in November, elected Dr. Claiborne T. Smith, of Rocky Mount, president; Dr. Spencer P. Bass, of Tarboro, vice-president, and Dr. George M. Brooks, Elm City, secretary-treasurer. It was decided to hold the next meeting in Wilson, N. C.

Dr. and Mrs. Emory Hill

Have returned to their home in Richmond

after a short visit to Dr. Hill's mother at Scottsville, Va.

Physicians Should be the Guardians of Public Health.

In view of the fact that several institutions of learning have introduced courses in Public Health whereby a layman as well as a physician may be instructed and in a comparatively short time qualify as a Doctor of Public Health and be allowed to advise, qualify and practice preventive medicine, and as this idea seems to be gaining favor among laymen, the Chicago Medical Society, in recent session, adopted resolutions in which they stated that it was their belief that all positions of trust pertaining to Public Health in any community should be held by physicians and not by laymen who have secured the D. P. H. licenses.

Dr. and Mrs. Arthur B. Carr

And children, of War, W. Va., recently visited relatives in Richmond. Dr. Carr is a member of the class of '21, Medical College of Virginia, and has many friends in this section.

Dr. and Mrs. Francis W. Upshur

Have just returned to their home in Richmond, after a visit to New York City.

The Ninth District Medical Society of North Carolina,

At its recent meeting in Lexington, N. C., elected the following officers: President, Dr. Jarvis R. Terry, Lexington; vice-president, Dr. Andrew B. Byerly, Cooleemee; secretary, Dr. James W. Davis (re-elected), Statesville.

Health Movies, New York.

The New York State Department of Health now has five short health films which are loaned without charge within the State. The films are suitable for general use and it is suggested that health workers have one included in the local theatre programs each week.

Infant Mortality, Canada.

A decrease of 9 per cent in the infant death rate for the vital statistics registration area of Canada during 1924 is reported by the Dominion Bureau of Statistics. The maternal mortality rate in 1924 was 6 per 1,000 live births, the highest rate since 1921.

Dr. H. Frank Givens,

Formerly of Virginia, but now of West Bend, Ind., has been visiting friends and rela-

tives at Glen Wilton, Va., where he formerly lived.

Dr. and Mrs. E. P. Amiss,

Farmville, Va., have been on a visit to Martinsville, Va., where they for a time made their home.

Dr. J. S. Davis,

Professor of Practice of Medicine at the University of Virginia, by invitation, delivered an address before the Richmond Academy of Medicine, November 10, his subject being "Some Aspects of Mouth Troubles."

Dr. Eugene Pendleton

Has returned to his home at Cuckoo, Va., after undergoing an operation at a Richmond hospital.

Elks to Have a Sanatorium.

It is announced that the Virginia B. P. O. Elks will build a tuberculosis hospital for their members and their families. The site selected is near Blue Ridge Sanatorium, Charlottesville, and the sanatorium will have accommodations for forty patients. It is hoped it may be opened during the summer of 1926.

A Tax on Cosmetics for Health Work.

Dr. B. B. Baby, health officer of Richmond, in an editorial on "Christianity and Health Work" in the November issue of *The Chesapeake Christian*, of this city, calls upon the women of Virginia to assist in placing nurses in each county of the State. Public health nurses are needed to care for many of the suffering children and women in some of the rural sections of Virginia, where it is impossible to secure doctors. For this purpose he suggests a small tax on cosmetics (not that he is opposed to their use), but that the women may have this opportunity of providing nurses and paying for rooms in hospitals.

In keeping with this suggestion, Hon. Wm. A. Wright, of the House of Delegates from Essex County, will present a bill in the coming legislature, proposing a tax on cosmetics, the proceeds to be spent for public health nurses, clinics and free hospital beds in the State of Virginia.

Dr. Lewis H. Taylor,

Of Washington, D. C., has returned home after a visit to Huntington, W. Va., and Amelia County, Va.

Dr. William C. Powell,

Petersburg, Va., was a recent visitor in

Shelby, N. C., where he went on a business trip.

Dr. U. G. Jones,

Of Johnson City, Tenn., spent some time on business in Marion, Va., last month.

Dr. and Mrs. W. W. Insley,

Of Christiansburg, Va., last month visited their daughter at Ewing, Va.

A Correction.

In our item on the recent meeting of the Clinical Congress of the American College of Surgeons, in our November issue, we inadvertently made the statement that Dr. A. Murat Willis, Richmond, was the only Virginian on the program. Later reference to the program, however, shows that we were in error, as we note that Dr. Israel Brown, of St. Vincent's Hospital, Norfolk, spoke of "Postmortems in the Open Hospital," in the Hospital Standardization Conference. We regret our oversight.

Dr. and Mrs. Reid White,

Lexington, Va., were recent visitors in Asheville, N. C.

Dr. and Mrs. Charles Graham Fox,

Wytheville, Va., were among Thanksgiving visitors in Richmond, this year.

Protection of Working Mothers, Chile.

Recent legislation in Chile provides that every working mother must have a rest period of 40 days before and 20 days after childbirth, her position being held for her during this period; that factories shops, etc., must provide nurseries for the care of the babies of working mothers, and that mothers must have free periods during the day to nurse their babies.

Crippled Children, North Carolina.

The income from a \$500,000 bequest to the North Carolina Orthopedic Hospital is to be used for the treatment of "poor and indigent" crippled children, according to the bulletin of the State Board of Charities and Public Welfare.

Hospitals and Venereal Disease Control.

That hospitals may function effectively in the control of the venereal diseases is the substance of an editorial appearing in the October number of *The Modern Hospital*. Says the editor: "One specific part of the public health program in which hospitals could and should actively engage is in the control of

venereal diseases. In no particular is there a greater opportunity to do educational work and certainly in the treatment of the venereal infections much may be accomplished if the work is thoroughly done." The work of the United States Public Health Service through its Division of Venereal Diseases is commented upon as being "largely responsible for the awakening of the people of the United States to the actual and potential dangers that the continuance of these diseases constitutes."

Hospitals can render invaluable assistance to State, city and county health departments by giving the general public information regarding this gigantic health problem. With that end in view, not only hospital superintendents and the medical staff, but nurses, social workers and others coming in contact with the sick should be educated to the point that they will assist in promoting this valuable public health activity. "Here," concludes the editor, "is a piece of work and a responsibility that the hospital field should and must meet at once."

The Physicians' Home, Inc.

A banquet was held at Hotel Waldorf-Astoria, New York City, Monday evening, November 23, to inaugurate the National Campaign for an endowment fund for the National Home for aged and needy physicians. This is endorsed by the leading physicians and laymen of the world, including the women. Dr. Robert T. Morris is president.

On the occasion of the banquet, addresses were delivered by a number of prominent laymen and physicians, among whom were the Hon. Chauncey M. Depew, Hon. Elihu Root, Drs. Hubert Work, Charles H. Mayo, and Alexander Lambert. A special program of music was also given. The fact was brought out at this banquet that approximately 5 per cent of the more than 140,000 physicians in the United States are incapacitated and it is these that the Home seeks to serve. The first small unit of such a home is already in service at Canadea, N. Y.

The Physicians' Home, Inc., has established headquarters in Times Building, at 42nd Street and Broadway, New York. Contributions should be forwarded to the treasurer, Dr. Albert G. Weed, at that address.

Dr. H. H. Ware, Jr.,

Of the class of '24, Medical College of Vir-

ginia, who served as interne at Stuart Circle Hospital, Richmond, following his graduation, is now at the New York Nursery and Child's Hospital, as an interne on the obstetrical service.

University of Michigan Opens New Hospital.

The new University Hospital, operated in connection with the University of Michigan, was formally dedicated on November 19 and opened for inspection on November 19, 20 and 21. Many distinguished speakers gave addresses and a number of clinics were held in the different amphitheatres and lecture rooms in the Hospital.

On the 20th, the Hospital served luncheon to the guests and visiting physicians.

Dr. James M. Miller,

For some time located at Crockett, Va., is now living in Wytheville, Va.

Dr. J. M. Harman

Has returned to his home at Floyd, Va., after spending some time in Richmond, where he was undergoing treatment at a local hospital.

Dr. Baxter C. Culler,

Located for a time at Fieldale, Va., has now moved to Martinsville, Va.

Dr. E. W. Peery

And family, of Lynchburg, Va., have gone to Delray, Florida, for the winter, with the idea, perhaps, of making it their home.

Pure Milk, Illinois.

Certificates of approval from the Illinois Department of Public Health must be secured by all milk pasteurization plants, except in large cities with good municipal inspection, according to a recent law. Employees in such plants must have annual physical examinations.

Babies Saved, Bridgeport, Conn.

Four year's work by Bridgeport's division of infant hygiene has reduced the city's infant mortality rate from ninety-two per 1,000 live births to fifty-six, a drop of almost forty per cent.

Health stations have aided in this work. The cost of keeping in touch with a baby at home and in the health station is only twenty-nine cents a visit.

Equal Guardianship Bill, Great Britain.

The principle of equal rights and responsibilities for mothers and fathers in the guardianship of their children is recognized by the

British Parliament in a bill passed recently. Agitation for such legislation has continued for years. The new law provides that in any case coming before the courts the child's welfare shall be the first consideration. Mothers are given equal rights with fathers in appointing guardians after the death of either parent.

That Blue Slip.

Members of the Medical Society of Virginia will find in this issue a blue slip which is self-explanatory. Won't you look for it? Its use by members generally will save this office much time which may be given other work. It should not, of course, have attention of those who have paid their 1926 assessments.

In closing the year, we take this occasion to thank all our members for their loyal support and co-operation during the past year and count on a continuance of your good will.

Again, we would call attention to our advertisers. There are none better for the products they bring to your attention. In patronizing them, you are helping yourself. "Nuf sed."

Dr. T. Duckett Jones,

Of the class of '23, University of Virginia Medical School, is cardiac research resident and is working with Dr. Paul D. White at the Massachusetts General Hospital, Boston.

Dr. and Mrs. S. R. Jordan,

Townsville, N. C., spent Thanksgiving holidays with friends at Virgilina, Va., where they formerly made their home.

Dr. H. W. Porter

And family, of Louisa, Va., were recent visitors in Richmond.

Dr. Howard Fox,

Prominent dermatologist of New York City and president of the American Dermatological Association, has been appointed professor of dermatology and syphilology in the New York University and Bellevue Hospital Medical College. He succeeds the late Dr. William Trimble, who had been a member of the medical college faculty since 1898.

Dr. and Mrs. C. S. Dodd

And family, of Petersburg, recently visited relatives near Chase City, Va.

Dr. and Mrs. J. T. T. Hundley,

Radford, Va., have returned home after a visit to Dr. Hundley's parents in Lynchburg.

The Norfolk and Western Surgeons' Association

Held its annual meeting in Norfolk, November 4 and 5, Dr. J. M. Burke, of Petersburg, presiding. Everything was done for the pleasure of the surgeons and the meeting was a pronounced success. Many social features were provided, the last but not least of which was an oyster roast at Cape Henry. Dr. Beverley R. Tucker, Richmond, was elected president; Dr. H. A. Burke, Petersburg, vice-president; and Dr. T. D. Armistead, Roanoke, was re-elected secretary-treasurer. Dr. S. S. Gale, Roanoke, is chief surgeon of this road.

The Chesapeake and Ohio Railway Surgeons' Association,

At its meeting at White Sulphur Springs, W. Va., early in November, elected Dr. Robert J. Wilkinson, Huntington, W. Va., president for the coming year, and decided to hold its 1926 meeting at White Sulphur Springs. Dr. W. T. Oppenheimer, Richmond, is chief surgeon of this road.

Maternity and Infancy Work.

Are American children undernourished? Physicians and nurses holding child-health conferences in forty-three States under the Federal Maternity and Infancy Act report that malnutrition, or undernourishment, is prevalent among the children they examine. Other frequent defects are eye, nose, and throat abnormalities, cavities in the teeth, orthopedic defects, glandular enlargements or insufficiencies. Nearly 600,000 infants and preschool children were examined by States co-operating under the Maternity and Infancy Act during the two years, 1924 and 1925.

Crippled Children, Michigan.

Michigan, attempting to give handicapped children the earliest possible care, now asks on birth certificates whether there is any serious deformity or defect in the child at birth. This is a recent step taken by the State Department of Health.

Midwife Work, Virginia.

With one-third of all reported births in Virginia attended by midwives, midwife instruction is recognized as a vital part of the State work for mothers and babies. A supervisor of midwife education has organized classes for midwives and given the course of instruction in forty-nine counties.

Playgrounds, Rio de Janeiro.

The mayor of Rio de Janeiro was authorized last June to establish ten public playgrounds for children in open squares in different parts of the city, with the provision that he might open as many more as he should consider wise. The playgrounds are to be adequately equipped for gymnastics and for tennis and other sports, and the cost will be met by taxation.

Wanted—

To succeed a physician who is retiring and has home for sale. Address No. 438, care the *Virginia Medical Monthly*. (Adv.)

Warning!

Doctors having policies with the Buckeye Mutual Health Association, of Columbus, Ohio, will do well to know the experience of the undersigned with this Company. Walter Cox, M. D., Winchester, Virginia.

For Sale or For Rent.

Because of the untimely death of Dr. George T. Divers, the St. Martin's Hospital, of Stuart, Virginia, offers an excellent opportunity for some doctor and surgeon.

The building has all modern equipment, steam heat, electric lights and water, beautiful grounds, adequate room for forty patients, rooms with or without bath, located near corporate limits of the Town of Stuart in one of the most beautiful and healthy sections of the Blue Ridge. This fire proof building was erected in 1923.

For particulars, write to R. Paul Sanford, Attorney, Stuart, Virginia. (Adv.)

Obituary

Dr. Edwin M. Newsom,

Prominent child specialist of Newport News, Va., died in that city, November 9, after an illness of five weeks with kidney trouble. Dr. Newsom was forty-one years of age and a native of Bedford City, Va. He studied medicine at the University College of Medicine, Richmond, from which he graduated in 1909. Shortly thereafter, he located in Newport News, where he had since made his home. He was a Mason, a member of his local and State medical societies, as well as of the American Medical Association and various other organizations. In addition to his private work, Dr. Newsom was a member of the staff of the

Elizabeth Buxton Hospital. His wife and a daughter survive him.

Resolutions Upon Death of Dr. Newsom.

Upon the death of Dr. Edwin M. Newsom, of Newport News, Virginia, the Warwick County Medical Society, in session assembled, adopted the following resolutions:

RESOLVED, That we deeply regret the death of a member with whom we have been long associated; that in the severance of these relations he will be greatly missed by us.

That we record with pride his professional achievements and the evidences of character which in his life have been so convincing and so conclusive.

To his family, his friends and to that wide circle of people who looked to him for professional advice and guidance, we extend our sympathy and sorrow.

W. F. COOPER,
L. E. STUBBS,
F. W. POINDEXTER,
Committee.

Dr. Thomas Dunn Hutton,

One of the most prominent physicians of Southwestern Virginia, died at his home at Glade Spring, Va., November 19, after a short illness. Dr. Hutton was a native of Washington County, Va., and studied medicine at Bellevue Hospital Medical College, New York, and the Medical College of Virginia, Richmond, taking his degree from the last named school in 1893. He had been a member of the Medical Society of Virginia since 1897, and was also a member of Southwestern Virginia Medical Society, and a member of Washington County Board of Health. His wife and several children, besides a large family connection, survive him.

Dr. William Macon Smiley,

Of Salem, Va., died at his home in that place November 6, at the age of fifty-seven years. Dr. Smiley formerly made his home in Halifax County, Va., but had resided in Salem for the past few years. He was a graduate of the Medical College of Virginia, Richmond, in the class of 1901, and one of his sons is now a member of the senior class in that school. Dr. Smiley was formerly a member of the Medical Society of Virginia.

Dr. Thomas W. Repass,

Of Wytheville, Va., died at his home in that place November 15, at the age of fifty-eight years. He was born in Bland County, Va., and, upon completion of his academic education, studied medicine at the Medical College of Virginia, Richmond, taking his degree in 1895. He had practiced in Fluvanna County, Va., and in Pocahontas and Roanoke. He is survived by his widow and three sons.

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OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

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RICHMOND, VA., JANUARY 1926

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Original Communications

THE SIGNIFICANCE AND IMPORTANCE OF PERIODIC MEDICAL EXAMINA- TIONS.*

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I welcome the opportunity to discuss with you this evening the subject of periodic medical examinations. A good deal, as you know, is at present being written and said upon this theme. Just last week a conference of the secretaries of all the State medical societies and the Board of Trustees of the American Medical Association was held for the study and promotion of such examinations through the county and State medical societies. The medical profession generally appears to be very much in earnest about this matter and as I shall attempt to indicate hereafter, this proposal, though still recent in origin, has passed from an academic to a practical stage.

The movement is significant from the standpoint of preventive medicine because it emphasizes the importance of the individual assuming a larger share of responsibility for his own health through utilizing the services of his physician for health promotion as well as for disease prevention. Simple as such a proposal may appear, it marks, as I see it, a somewhat new tendency in health work. Those of us who have been primarily concerned with the problem of public hygiene and preventive medicine as developed during the past few decades realize that our scientific resources have been pretty largely though not exclusively devoted toward protecting man from external agents—from parasitic diseases, which so far as the individual is concerned were largely fortuitous, and from unwholesome and morbid environmental factors and influences. While we have been thus engaged we have not seriously interfered with man's personal outlook on health and disease which remains

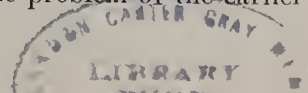
pathetically archaic in spite of the remarkable advances in medical knowledge. "Keeping the doctor away" is to the average man still a measure of fitness, and there are yet too many people who regard the physician as a "man of mystery" to be sought only as a last resort. I confidently believe, as the practice of periodic medical examinations becomes more and more universal, that this medieval attitude will undergo a complete change and that the physician will come to be recognized more and more as a "health counsellor."

As medical men, we recognize more fully than ever before that we cannot come anywhere near our potentialities in preventive medicine and health promotion until every individual, in a conscious, deliberate and personal sense seeks to avoid unhygienic, health destroying practices which lead to functional disharmony, to degenerative changes, and to morbid processes, and undertakes in a positive sort of way the attainment and maintenance of health and bodily harmony. I shall not insist that such an Utopia can be achieved through so simple a procedure as periodic medical examinations. That the application of this procedure on as universal a scale as possible is a step in the right direction no one can seriously deny. Health examinations cannot be dismissed as a passing fad for the efforts already undertaken by reputable medical and health organizations to give them a conspicuous place in our health programs is assurance enough of their significance and importance.

One of the earliest presentations of this subject in a formal way was at the annual meeting of the American Medical Association in 1900. Doctor George M. Gould, of Philadelphia, in addressing the Association at that time, anticipated the significance and importance of this movement when he said:

"All good medicine inevitably tends to become preventive medicine; all good physicians labor to stop disease before it arrives. The whole ingenuity of the trained diagnostician is now expended on the problem of the earlier

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symptom. He is the greatest discoverer who finds the presymptom, or the symptom of the symptom; the greatest therapist is he who cures before the disease exists, he who starves the bacillus to death, he who stops the evil habit, thus preventing the malfunction that becomes organic disease."

In 1910, additional light was thrown upon the subject by Irving Fisher's well-known study, "National Vitality—Its Wastes and Conservation." His report states: "We must conclude that at all times in the United States about 3,000,000 persons are seriously ill." He estimated that fully half this illness was preventable.

Among the first organizations to undertake periodic medical examinations were some of the larger insurance companies who offered this service to their policyholders. An interesting report from one of these companies has just made its appearance in the *American Journal of the Medical Sciences* (October, 1925, p. 576.) The principal findings relative to the physical condition of more than 16,000 men (which apart from the draft examinations constitutes one of the largest groups examined in recent years) are given in tabular form. "It is entirely credible," states the report, "that the facts shown for this group of more than 16,000 males are indicative of conditions in the general population of white males. If so, it is clear that a wider extension of periodical health examinations among the adult population is indicated. Hygienic advice and the prompt treatment of both major and minor defects thus discovered may lead to the prevention of serious consequences to those individuals later on. Most of the defects and impairments discovered in the younger ages of adult life are subject to effective control." What gave our complacent attitude toward health values the greatest jolt, however, was the appalling wartime disclosures of defects, abnormalities and disabilities among recruits. What made these revelations especially disconcerting was the fact that the men examined were presumably well and in an age group where optimum vitality was to be expected.

The cumulative force of these various revelations of our physical poverty led such organizations as the American Medical Association and the American Public Health Association to take cognizance of the problem and to project a definite program of action. In 1922, the

American Medical Association went on record urging county medical societies to make public declaration that their members are prepared and ready to conduct such examinations, it being understood that the indigent only shall be examined free of charge and that all others are expected to pay for such examinations. This stand has been reiterated at every subsequent meeting of the Association. Particularly impressive was the resolution presented by the Committee on Hygiene and Public Health at the Chicago meeting in 1924, which reads as follows:

Whereas, Periodic medical examinations of all the people from birth to death are of great importance in the promotion of health; therefore, be it

Resolved, That state and county medical societies be urged to endorse as a part of the health program of organized medicine the making of these examinations:

That the members of the respective societies be requested to make such examinations in the homes or in their offices, free to any persons who, by reason of economic conditions, require such favorable consideration, and

That in the performance of the work the same sympathetic confidential relation be maintained between physician and patient or family as has ever characterized the efforts of true physicians.

At this meeting the preparation of a manual of instructions for physicians was authorized. This manual should be available at an early date. Examination forms, with which many of you are doubtless familiar, have also been distributed by the Association to the extent of 100,000 copies. At the 1925 meeting in Atlantic City it was further decided that, owing to the nationwide need and interest in physical examinations, the Bureau of Health and Public Instruction be empowered to call a conference to correlate the work already done and devise a nationwide plan for adoption. This is the conference which convened last week.

Besides the interest which the national organizations are taking in this matter, I might refer briefly to what some State and county medical societies are doing in a concrete way to promote this particular program. One State society (Massachusetts) has just issued a handbook for health examinations by physicians. The handbook, according to its authors, is not in the nature of a text-book of diagnosis or

treatment, nor an exposition of any new specialty in medicine, but is simply a description of the general technique of such examinations for the general practitioner whose function it should be to perform them. "We know," says the Committee which prepared the manual, "that by periodic careful physical examinations, with a standard of normality well in mind, the beginnings of certain diseases or tendencies toward them may be detected while they are still curable or preventable. Here again the family physician finds for himself a place in the practice of preventive medicine that can be filled by no one else."

Another example of organized activity is that of a county society (Medical Society of the County of Kings, Brooklyn, New York) which undertook to have physicians themselves take the lead in this work by undergoing health examinations personally. This same society sent circular letters to 2,500 physicians in the county which included the following observation: "The private physician is more or less familiar with the patient's interests and environment and therefore better able to render health service to the individual than is the case when the examinee comes as a stranger to a strange physician. This is important—the success of a health examination depends more upon the rapport between physician and examinee than does a diagnostic examination." One outstanding difficulty is referred to, that of the emergency nature of private practice. To overcome this disadvantage the suggestion is made that the examinations be planned for in advance.

Another significant undertaking to which I wish to refer is that of the Medical Society of the County of New York. The Society recently conducted a symposium, held at the New York Academy of Medicine, at which an impressive series of papers was presented by recognized leaders in their respective fields of medicine, covering practically every phase of medicine from the preclinical point of view. The introductory paper sounds the keynote of the symposium:

"A new field is opening for the physician. I venture to predict that in the future, all intelligent men and women will have their own health physician to whom they will look to keep them well and vigorous. This will not come until the public recognizes the fact that the physician can adequately give this service.

To hasten the day and to insure its coming, we shall be wise to address ourselves to the task of becoming as efficient and successful in this field as in the field of prevention of communicable illness and the cure of disease."

A review of these several substantial undertakings, which by no means covers all that is being done, indicates that we are moving in the direction of a rather well defined effort to widen the scope of preventive medicine with the private physician occupying the key position. That the program which these examinations on a large scale contemplates is fraught with difficulties as well as with significant possibilities no one will deny. The nature of some of these difficulties I have already referred to. Slogans alone will not insure success. There are ancient traditional attitudes to overcome both on the part of the lay public and the physician. It is still customary for both to think of health as the mere negation of disease. Some of our medical concepts may have to undergo revision. Even words may play an important role in popularizing this movement for already we note a tendency to refer to the physician as "health counsellor" and the patient as "health client." I might suggest any number of problems calling for a solution if the procedure under discussion is to have anywhere near a universal application, but the difficulties, real as they may be, should not close our eyes to the significant and far-reaching implications of this proposal. As I see it, there are important implications: (1) for individual, (2) for society, and (3) for medicine.

What such examinations will mean to the individual is perhaps obvious enough. Not only should the early detection of unhygienic habits, of functional disorders, and of minor as well as serious pathological conditions, make for an increased longevity, but should result as well in an increased efficiency and capacity for the enjoyment of life. Length, it is well to remember, is not the only dimension by which to measure life even from the medical standpoint. There is also the dimension of "breadth" which is positive health as distinguished from mere absence of disease. It is not enough that man should be permitted to grow old. He should have vigor and vitality in the prime of his life and as he advances in years he should not be forced to suffer the debilitating and disintegrating processes as-

sociated with senility. Senescence for him should be as much a creative and productive period of life as any other. Such a prospect is certainly not beyond practical achievement.

There is no need, I am sure, to dwell at length upon the social implications of increased individual well being. We can estimate in a rough way the national economic loss resulting from illness and disability but who can say what the social loss is resulting from the impaired efficiency of the vast army of borderline cases—the half sick and the half well. Consider merely the heads of families who go on for years, vaguely conscious perhaps of deficient vitality, but who never seek medical advice or aid until they are partially or completely disabled for gainful occupation. A simple precaution or correction early enough might have sent them on their way to financial independence, resulting in higher familial standards of living in the educational and social as well as the economic sphere. The emphasis which organizations interested in social work and in the prevention of crime, delinquency, and dependency are placing upon health promotion and the support which they are giving to the health examination movement is significant proof of the importance of health among the social values.

And now, a final word as to the significance of this movement to medicine as a science. We are still too much inclined to place disease and health in distinct categories, and yet how well we know that the line of demarcation is imperceptible. Our knowledge is scantiest where the two appear to merge and for that reason we may look for new light and significant facts as more and more people, presumably well, are brought under the scrutinizing eye of the physician trained to detect danger signals. A solemn scientific duty will rest upon the examining physician to keep accurate records, to note all of the facts in the clinical or pre-clinical picture. The value of such painstaking procedure is already being demonstrated with respect to many disorders. Impairment of the cardiovascular system, for instance, suggests to the trained observer an increasing number of "causes." Whether the embarrassed condition is associated with syphilis, with focal infection, with overweight, or any number of other factors, needs to be faithfully recorded. As these case histories multiply and as we obtain larger numbers of individual

clinical pictures covering a period of years, the significance of periodic medical examinations to medicine will become increasingly apparent.

PREVENTION OF PUERPERAL SEPSIS.*

By BURNLEY LANKFORD, M. D., Norfolk, Va.

"Ye shall know the Truth, and the Truth shall make you free" is the motto inscribed over the entrance to one of the noble buildings at the University of Virginia. The truth shall set us free from the results of error and ignorance. As applied to obstetrics, particularly that branch dealing with the prevention of sepsis, the knowledge of the truth began to free us from the results of ignorance with the work of Oliver Wendell Holmes in this country, and Semmelweis in Europe (1843 to 1847). They showed conclusively to all who *would* see, that sepsis, or what they called "child bed fever," was due to some "contagium" introduced from without. They showed that the time for the accoucheur to wash his hands was before, rather than after a delivery, as had been the usual custom up to that time. When this was done, the mortality rate began to fall at once, though they did not know just why.

This powerful searchlight of truth, directed by Holmes and his followers upon the cause of puerperal sepsis some eighty years ago, was followed about 1880 by a more brilliant searchlight still, directed by Pasteur, Lister, Bumm, Doederlein and others, showing conclusively that puerperal sepsis was due to living organisms, introduced from without in most cases, and, therefore, preventable. Does it not seem strange, then, that nearly one hundred years later, we should have 5,657 women dying of puerperal sepsis in one year, in the registration area of the United States, and this only 87 per cent of the total population area? Among other possible factors, does this mean that we, of the noble, altruistic and usually beneficent medical profession, have not put into practice the truths that we know? If so, we must face the music; we must clean house, if we would not be made to dance and have our house cleaned for us.

A greater than Holmes, Pasteur or Lister said: "If you love me you will keep my commandments," and this applied to us means that if we love the good name of the medical pro-

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fession, if we are in earnest in the fight that the medical profession is making against puerperal sepsis, we will keep the commandments that, when kept, we know will lessen this fearful risk that every pregnant woman has to face.

Just as we learned from Holmes and Semmelweis to wash our hands before conducting a labor, before making a vaginal examination, we have now learned that we should and can keep our hands out of the vagina during the majority of the labors we are called on to attend. We have sufficient, accumulated, accurate evidence to show that the incidence of sepsis rises rapidly with the number of vaginal examinations made during labor, and that the lowest rate of morbidity following childbirth is among those cases having had no vaginal examination. Nor has the rectal examination turned out to be the panacea that was expected. We must convince *ourselves* that frequent vaginal examinations are not necessary and that they *are* dangerous. We must learn to approach every vaginal examination with this thought always in mind, "I may infect this woman, I know how not to infect her." With such a mental attitude always present, we will not make hasty or ill-advised vaginal examinations, and if we cannot make a clean one, we will not make any until it can be cleanly made. If this one rule were steadfastly followed in Virginia for one year, I believe the rate of our puerperal sepsis would be cut in half and we could hang out a record that would surprise the world. We must restrain ourselves from making a hasty or unnecessary vaginal examination in cases of threatened or incomplete abortion. Only in the presence of alarming (to us, not to the patient or family) hemorrhage should we invade the vagina in such cases. There is usually sufficient time to clean up before investigating abortion cases, and it is good practice to have everything ready to evacuate the uterus at the same time, either by the finger or placental forceps, if such a course be found necessary.

The next great commandment we should keep, faithfully and incessantly, is to keep our hands out of all sorts of filth, surgically speaking. This sounds trite, but if we would conquer puerperal sepsis, this is one of the things we must do. A doctor, in the daily run of his work, must necessarily come in contact with all sorts of surgical uncleanness, *but* his hands

do not necessarily have to become infected. One thing the war taught us was to handle pus cases with forceps. We did not have gloves and we did have thousands of rotten pus cases, but we learned to dress them all day long without touching them with our hands and without getting our hands infected. This lesson can be carried over into every day, general practice. We must keep short and clean finger nails. This rule should apply as well to the nursing as to the medical profession. Death, literally, may lurk under the *long*, but beautifully polished and well kept nails of the graduate nurse. Let each man here look at his own and his neighbor's nails, and ask himself the question if his nails and hands are safe to make the vaginal examination he may be called upon to make tomorrow?

In order that internal examinations may not be so apparently necessary, more time and thought and *practice* should be given to abdominal palpation of the parturient woman. And right here, a lance should be broken against the present almost universal medical curriculum. The most recent report (not yet in print) of the joint Maternal Welfare Committee of the American Association of Obstetricians, and the American Gynecological Society, shows that among the medical colleges throughout the United States 18 per cent of teaching time is given to surgery and only 4 per cent to obstetrics. This means in general that the young doctor must go out into general practice and undertake the conduct of all obstetrics that applies to him, though he certainly would not be expected to do the same with all the surgery that occurs among his clientele. Although both are major branches of medicine, he has received more than four times as much instruction in one as in the other, and he is "short" in the one he will be called upon to practice under the most difficult conditions.

It is not enough that we should be clean ourselves before approaching a woman in labor; we must give *fore-thought* to the surroundings in which she will be delivered, in order that they may be clean and suitable for a safe confinement. Experience of recent years has proved that women are more safely delivered in well-appointed hospitals than in private homes, but the fact remains that for many years yet the majority of women will continue to be delivered in their homes. An important

factor in the reduction of puerperal mortality from all causes will be the establishment of more hospitals in the smaller towns, where women may be more safely cared for, particularly those who develop the need for hospitalization after the onset of labor. The great increase of good roads makes most of the smaller towns accessible to their rural communities, and as soon as the general public realizes the value of hospitals for the conduct of labor, such hospitals will be built.

Confinement does not come to the family unexpectedly, like appendicitis or accident. The family and the attending physician have months in which to prepare for the important event, and if the surroundings are not clean, one or the other is to blame. Results obtained by students working in the out-patient departments of lying-in hospitals in the slums of our great cities prove that surgical cleanliness for deliveries may be had in the humblest homes. Clean sheets (not necessarily sterile sheets), and clean floors can be prepared, and the patient can be safely draped with four large towels (which *ought* to be sterile) one across the lower abdomen, one around each thigh and one under the hips.

As confinement may ensue unexpectedly during the last few weeks before the predicted date, husband and wife should be warned against the danger of sexual intercourse at least during the last two months of pregnancy. Every time intercourse is had, foreign bacteria are deposited in the vagina. Experimental work has shown that streptococci are present under the prepuce in 75 per cent of men examined as well as colon, staphylococci and other pathogenic organisms. The literature contains accounts of deaths from puerperal sepsis, where it has seemed certain that the infection came from coitus shortly before the onset of labor. This warning, then, is not fanciful, but one that should be sounded to every pregnant woman, and a practical point is to give this advice to the husband in the presence of his wife.

The preparation of the patient's person is still a debatable question. If a shower bath be available, either regular shower, or tube attachment to spigot, it will be well to have the patient given a good soap and water cleansing bath as soon as she goes into labor, but never a tub bath at this time, nor for that matter, during the latter weeks of pregnancy. Should

the patient be clipped, shaved or left alone, with reference to the vulval hair? Should she be scrubbed with soap and water, should she have any of the various skin antiseptics, or should she be left alone with reference to the preparation of the delivery area? Opinion varies as to the answer to both of the above questions. Recent investigations (Fricke, working under J. W. Williams in the Johns Hopkins clinic) showed streptococci present on the vulva in 14 per cent and in the vagina in 8 per cent of clinic patients. Another series of women examined in their homes showed streptococci present on the vulva in 75 per cent. This would seem to show that the vulva and surrounding area is a very dirty area, surgically speaking, and it would seem a part of the nurse's or physician's duty to make some effort to render that area sterile before delivering the patient. By removing the pubic and vulval hair, a great nidus of infectious material would be at once removed, and with the application of some reliable skin antiseptic (which would not interfere with any bactericidal property the vaginal secretions may have), it seems reasonable to suppose that the delivery area would be safer than when nothing has been done. The death rate from puerperal sepsis per 100,000 of women population was 11.6 in 1900; for 1920 it was 12.2. If and when we find some reliable method of making the external genitalia sterile, and put such a method into practice, will not one factor in the cause of puerperal sepsis have been eliminated? Scrubbing with soap and water does not produce a surgically clean field, and, in addition, will certainly carry surface organisms into the vaginae of multiparae. The application of one coat of 3.5 per cent tincture of iodine, which is allowed to dry, followed by the application of another coat, which is likewise allowed to dry, and the excess of iodine taken off with copious alcohol sponging, will produce a sterile field in 90 per cent of cases. This should not be applied until the patient is almost ready to be delivered, and partially under an anesthetic, so that if pain be complained of, a few breaths of the anesthetic will bring relief. It should be applied by the physician himself, after he is scrubbed up and ready for the delivery. When thus carefully applied, it will *not* blister, and any pain complained of will be but momentary. Any physician who will use this technic for a year, and

then go over his cases, will find that his morbidity has decreased. More recently, the use of mercurochrome 220 soluble has been advocated from numerous sources. To be effective, it should be used in 4 per cent solution (Mayes) and should be allowed to remain on the skin at least five minutes before making an examination or before any obstetrical operation is begun. Mercurochrome has the advantage of not causing any pain, but it is not so rapid in its action as iodine-alcohol, and leaves very unsightly stains. The routine use of either iodine or mercurochrome is probably the best method we have at present for preparing the external genitalia for delivery.

Shall the physician invade the vagina with antiseptics in the effort to make the vagina surgically clean? This is a question which remains to be settled, and at the present time cannot be accurately answered. Some of us are old enough to remember when the vagina was routinely douched before and after labor. This did not cut down morbidity and was finally abandoned. Then followed a period in which the vagina was held inviolate, and still the morbidity and mortality has not fallen appreciably. Now come other investigators and tell us that the streptococci may be found in the vagina vault in 55 per cent of parturients! If this be true, our women must have an immunity to their own streptococci, and one of our problems must be to aid that immunity as much as possible during labor by the relief of pain, the avoidance of long periods of wakefulness with pain (producing fatigue in long drawn out labors), the practice of "masterful activity rather than the watchful waiting of ignorance or inattention," the prevention of post-partum hemorrhages, the immediate repair of lacerations, the securing of adequate post-partum drainage, the early allowance of a liberal diet, and the insistence on a complete rest during the first forty-eight hours after labor.

Recent figures of our State Bureau of Vital Statistics show that death from sepsis among the colored women of the State is decreasing, but that among the white women it is increasing. In 1922, seventy-six colored women died of sepsis; in 1924, fifty-five. On the contrary, in 1922, seventy white women died of sepsis and in 1924 this had risen to seventy-six.

Colored women are attended largely by mid-wives and during the last three years it has

been illegal for mid-wives to make vaginal examinations. The decrease of sepsis among colored women seems strongly suggestive of cause and effect relation between vaginal examinations and puerperal sepsis, which relation was brought out eighty-two years ago!

The most recent report of the Royal Commission on National Health of Australia showed that in 1913-14 sixty-four per cent of the women of Australia were delivered by physicians: in 1923 this had increased to seventy-nine per cent but the death rate from puerperal sepsis has remained undiminished between 1905 and 1924.

We can draw our own conclusions from figures like the above, which could be duplicated and multiplied from various other authentic sources. The most apparent conclusion is painful, but we must face it, namely, that we, of the regular medical profession, are not making use of the knowledge that we have in the conduct of our obstetrics. We *can* remedy this condition, and we *must*.

PUERPERAL INFECTION: MANIFESTATIONS AND END RESULTS.*

By L. A. CALKINS, M. D., Ph. D., University, Va.

If you could be told how always to prevent infection and then how, if it should occur in spite of you, always to cure it, there would be little need for a discussion of the many varied and persisting forms that this condition may assume. Because the condition cannot always be prevented, and because, when it does occur, it may present such a variegated picture, it is perhaps excusable to say something about the diagnosis in order to know when to apply and how best to use the various form of treatment. Nothing will be said of etiology or mode of production of these infections.

The extreme frequency with which puerperal infection goes undiagnosed constitutes the only excuse I have for appearing on this program. It was once my privilege to hear a veteran in the practice of medicine make the statement, that he had attended two thousand cases of childbirth without a single instance of puerperal infection. This gentleman made a perfectly honest statement. He did not know of a single case of puerperal infection in his experience. No doubt many cases occurred that he did not recognize as such. No doubt many

*Read as part of symposium on Puerperal Infection at the fifty-sixth annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

other cases occurred and were thought to be only a "weakness" on the part of the patient, and the physician was not summoned for relief. Probably the great majority of his patients were not watched for the occurrence of fever, rapid pulse, or the other signs of infection. All this was not because this physician did not have at hand the facilities for making a diagnosis of puerperal infection. It was because he had not been trained to the necessity of post-natal visits and to the strict obligation on his part to diagnose accurately puerperal infection as early as possible, in order to prevent the many dire results, which we know occur following this condition. More modern medical teaching, as well as the modern practice of obstetrics, provide for daily visits to the lying-in patient during the puerperium. The great increase in the visiting nurse service, both in city and country communities, has also given rise to a much more frequent detection of infectious processes in their incipency.

Puerperal infection, in the broadest sense, includes all inflammations, which may occur anywhere in the body, during or closely following labor. We might say that puerperal infection is of two classes—first, pelvic; and second, extra-pelvic. Thrombo-phlebitis and breast abscesses are two examples of extra-pelvic infections.

The symptoms and signs of puerperal infection are not different from the symptoms and signs of any other infection. The four cardinal characteristics are heat, swelling, redness, and pain (or tenderness), and are varied only according to the particular organ or part of the body in which they are situated just as the physiology of those different organs is varied. The problem of diagnosis is, therefore, theoretically, very simple. We expect an increase in temperature. We expect an increase in the pulse rate. We expect an increase in the leucocyte count, and if the infection be of such a type that the bacteria gain entrance into the blood stream, we may get a positive blood culture. In addition to these clinical signs, we find the physical signs of inflammation in some organ or some part of the body.

Our attention is usually first called to the patient by the elevation of temperature. We are very prone to pay more attention to a patient's temperature curve after delivery than to almost any other feature of her conva-

lescence. That this is not the best practice is agreed to by most authorities on the subject. According to Lea, one of our best modern authorities, "The pulse rate is in direct proportion to the amount of toxic products absorbed into the circulation and to the virulence of the infective organisms, and, if carefully observed, forms the most reliable indication that we possess of the gravity of the disease. The increase in the pulse rate often precedes the rise in temperature and it often remains fast after the temperature falls." I believe that, if I could have but one clinical feature of the puerperium on which to depend, I should prefer the pulse rate to any other.

The leucocyte count is also a great deal of help if properly interpreted. It is not generally known that the white blood cell count is normally increased during and following labor. A count of nine to ten thousand is now regarded as the average normal at the time of labor as compared with seven to eight thousand at other times. It is also generally accepted that a count of twelve to thirteen thousand on the third day after delivery is a perfectly normal occurrence. We cannot, therefore, regard counts of less than fifteen thousand as markedly pathologic after delivery.

Lastly, the blood culture is of a great deal of aid in determining the type of infection as between local inflammations, septicemia, and bacteriemia, but is not of paramount importance in determining treatment, because, as Dr. Gray will tell you, the treatment of all types of puerperal infection is essentially the same. The variation in treatment is largely between mild and severe infections rather than between types of infection.

In most cases the patient will not have symptoms pointing to any one organ or part of the body, so that our physical examination must exclude one organ or one part of the body after another until we find the part really affected. I teach my students to start at the top of the head, and examine the patient clear through the soles of the feet, leaving the pelvic examination until the last, because, by that means, we often find the offending organ far removed from the pelvis. Moreover, it is quite important, as the other speakers will tell you, to limit vaginal examinations as much as possible. I have often treated puerperal infection cases, either following abortion or following labor, for a week or ten days, or even longer,

before a pelvic examination is made, because I have the utmost respect for an inflammatory process of this nature in the genital tract. I wish to stir it up as little as possible and only make examinations when localization or abscess formation is suspected. In other words, we make our diagnosis of pelvic inflammation at this time as much by exclusion of the rest of the body as by exact localization in the pelvis or pelvic viscera.

The time of incidence with relation to delivery is of considerable help in determining the cause of increase in temperature and pulse rate. Those elevations occurring on the day of delivery are the result of the trauma of labor, and are called by some "traumatic fever," or, they are the result of an actual intra-partum infection. These latter infections are usually of the amniotic sac or of the placenta itself, and, in such cases, are also manifested in the child in the majority of instances. On the third day after delivery we have an elevation of temperature and increase in pulse rate due to engorgement of the breasts or to true puerperal infection in its more limited sense. On the fifth to the eighth day we have the appearance of true mastitis and elevation of temperature due to retroversion of the involuting uterus with a resultant retention of lochia in the uterine cavity, while on the twelfth to the sixteenth day we have the appearance of thrombo-phlebitis. The exact time incidence is, therefore, of considerable help in detecting the type and locality of the infection present.

The amount of elevation of temperature and the character of the temperature curve is also of aid. The *height* of the temperature, especially at the onset, is of some prognostic value. The *type* of the curve is of help in differentiating the character of the infection. In the mild sapremias the temperature is subject to considerable variation, and is rarely very high. These patients are usually sick for quite a period, but almost uniformly recover. In septicemia, on the other hand, the temperature rises to a greater height, and is maintained nearly on a level. In bacteriemia we see a true steeplejack temperature varying from sub-normal to 105° or 106°, and perhaps making several oscillations a day. Occasionally in a severe case of bacteriemia the temperature may remain high over a considerable number of hours. The height of the temperature may be at times misleading. Small areas of inflam-

ination in the breasts may cause a temperature of 105° F.

The pulse rate, on the other hand, is a much more dependable criterion on which to base judgment, or render a prognosis. It is in almost direct proportion to the severity of the disease and will rarely be found to exceed 120 beats per minute in the absence of true septicemia, or bacteriemia. It is, in general, highest in those cases of bacteriemia in which the heart muscle is involved.

It needs no careful reasoning, therefore, for one to make a flat-footed statement that puerperal infection cannot always be diagnosed on one temperature and pulse reading a day, but the severe forms will nearly always be found if the patient is seen daily. Puerperal infection of any degree of severity will nearly always exhibit a leucocyte count in excess of 20,000. The blood culture will differentiate as between a septicemia and bacteriemia and will, therefore, aid in the prognosis but will not materially help in the treatment.

As for the local findings one needs to know little about them, other than that there is no abscess formation, because the surgical and local treatment, except for the draining of abscesses, is practically nil. It has been estimated by many different authorities that abscesses occur in less than five per cent of puerperal infections. They are, therefore, the exception and not the rule.

As for the end results of puerperal infections, they are three—the great majority of the cases recover entirely; a small percentage die; and there is a middle group comprising a fairly large percentage that recovers only partially. It is this group in which we are most interested. Perhaps most of these women present sterility as the one permanent ill result, due in part to cicatrization and in part to cohesive obliteration of the tubes. A somewhat smaller number have present more extensive scar tissue formation in the pelvis, with resultant bladder or rectal symptoms. A considerable number have a more or less permanent chronic passive congestion of the pelvic tissues, and pelvic viscera, with varying symptoms of all kinds. Finally, a small group retain permanent effects in other parts of the body, presenting greater or lesser degrees of invalidism, in which one or more organs or parts of the body may be most prominent. Permanent obliteration of one or both saphenous veins with per-

sistent milk leg, and bacterial endocarditis are examples.

I have given you no new information with regard to the manifestations or the end results of this very interesting condition. I can only hope that you may more readily recognize, and that you will be more persistent in your efforts to diagnose puerperal infection, rather than to look upon it as a disgrace if it should occur. I think that a conception of puerperal infection, somewhat similar to the one I have heard my "Old Chief" express with regard to perineal lacerations, might be well taken here. I have often heard him say that, "The disgrace was not in getting the perineal laceration, but lay rather in not finding and repairing it after it had occurred."

TREATMENT OF PUERPERAL SEPSIS.*

By B. H. GRAY, M. D., F. A. C. S., Richmond, Va.

It is the purpose of this paper to discuss briefly the treatment of puerperal infection.

For the proper treatment of puerperal infection, we must appreciate the physiological process which takes place in the uterus after the evacuation of its contents, as a result of retraction and haemastasis.

The sudden shutting off of its blood supply leaves the endometrium more or less covered by a layer of necrosing decidua which is cast off gradually by a process of surface starvation due to the active leucocytosis and the increase of the connective tissue cells which takes place beneath the decidua. This forms a granulating zone which prevents the invasion of all except the more virulent organisms. The entire cavity of the uterus becomes a granulating surface except the placental site, protected as in all surgical wounds by a granulating surface within a few days.

At the placental site, the thrombi in the open sinuses require a greater time for organization. This area is rough and raised and is covered with irregular masses of decidua, shreds of placental tissue, fragments of villi. Organization occurs in the thrombotic sinuses, while the bank of granulations thickens and causes exfoliation of the superimposed masses. This occurs from the tenth to the fifteenth day.

The effect of invasion of pathogenic bacteria upon these normal healing surfaces varies according to the nature and virulence of the

organisms and the manner and the soil into which they are introduced.

It is well known that the female generative organs constantly harbor pathogenic bacteria, such as the streptococcus, staphylococcus, colon bacillus, and others.

The studies of Bumm, Natvig, Kronig and Winter seem to prove that the vaginas of healthy women in the last weeks of pregnancy contain streptococci and staphylococci in from 45 to 75 per cent of cases.

Polak states that any of the infective organisms singly or in combination may be found in the post-abortal or post-partum uterus.

Repeated cultures of the interior of the uterus at various periods of the puerperium show that its contents after twenty-four hours post-partum are seldom sterile; over 50 per cent of the cultured cases in Polak's Clinic on the fifth or sixth day post-partum showed the presence of infective bacteria within the uterus.

The studies of other investigators on the bacterial flora of the generative tract confirm these observations. In the majority of instances, these organisms may lead a saprophytic existence, while under favorable conditions they become pathogenic.

The uterus is normally protected from invasion from the interior during and after labor.

During labor it is protected by:

1. The membranes.
2. Newly let blood which has anti-toxic properties.
3. The mechanical scouring out by the passage of the foetus and placenta.

After labor, the uterus is protected by the establishment of the lochial discharges and the normal reaction of the uterine tissue. This is shown by the protective granulation zone.

Infective organisms must penetrate this zone or pass through abrasions or other injuries in the uterine tissues to get outside of the uterus. The more virulent organisms, such as the streptococcus and some strains of the staphylococcus, have the power to do this.

It is important for the accoucheur to bear these natural defenses in mind so that he will not interfere with nature's methods of protecting the puerperal woman.

Puerperal infection, like other infections depending on the inoculation of the puerperal

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wound by pathogenic bacteria, may be local or general:

a. The local infections are illustrated by the infected perineum, cervix, endometrium, in which the tissue reaction limits the spread of the infective organisms.

b. In the general infections, the organism is more virulent or there is a diminished tissue resistance and the infection spreads beyond the wound area. This spreading infection occurs through (a) blood vessels, in which case it may manifest itself as a thrombophlebitis, pyemia or bacteriemia, or (b) through the lymphatics, producing parametritis, perimetritis or peritonitis.

It is not within the scope of this paper to discuss the pathological anatomy of the various types of puerperal infection, although the treatment must necessarily depend upon the pathological changes the tissues undergo.

Admitting that the genital canal frequently harbors pathogenic bacteria and that puerperal infection is wound infection due to the inoculation of bacteria which may migrate from the vulva, vagina or cervix, the vast majority of infections are carried to the wounded surface by the hands or instruments of the accoucheur.

It is apparent from the foregoing that the prophylactic treatment occupies an important role in the treatment of infections.

We have been slow to practice strict asepsis and to appreciate the surgical principles involved in the conduct and management of labor and the puerperium.

The prenatal care of the parturient woman is too frequently overlooked and she approaches labor physically unfit—with foci of infections and lowered resistance.

Unnecessary vaginal examinations are too frequently made, and infection is proportionate to the frequency of vaginal manipulation. Trauma lowers tissue resistance and opens up avenues of infection. Traumatic procedure should never be undertaken without definite indications and proper preparations for them.

Preservation of the membranes allows sufficient time for dilatation of the cervix to proceed with the minimum amount of trauma. The physiological conduct of the third stage of labor, without hurried attempts at separation of the placenta and its manual removal, are important factors in the prevention of infection. Bourne states that in 154 cases of manual

removal of the placenta at the Queen Charlotte Hospital, London, 35 per cent developed some form of uterine sepsis.

CURATIVE TREATMENT

The curative treatment of puerperal sepsis is a question upon which there is a great diversity of opinion.

Within recent years there is a more marked trend to conservatism. Radical measures have been tried and have been found wanting. If one recalls the natural reparative process which takes place in the interior of the uterus following labor and upon which the treatment must be based, a more rational treatment would follow.

The uterine cavity following labor is a large wounded surface, and is the principal portal of entry of infective bacteria. The natural defenses which Nature has thrown around this area will in the great majority of instances protect it against all except the more virulent organisms. With the more virulent organisms, such as the streptococcus, local tissue resistance does not act as a complete barrier and the infection spreads beyond the cavity of the uterus.

It is obvious then how futile any intra-uterine treatment would be, for it would tend to break down these natural defenses.

Maintenance of drainage and retraction of the uterus are the two important factors in all cases.

Drainage is accomplished by changing the position of the patient from side to side and by placing the bed in the modified Fowler position.

Retraction of the uterus aids drainage and tends to shut off the lymphatics: the use of pituitrin and ergot serves to aid retraction.

When there are infected wounds of perineum or cervix, sutures should be removed and the surfaces swabbed with iodine or mercurochrome, and free drainage established.

Cultures of the vagina and uterus should be taken to identify if possible the type of the infective organism.

It is a well-known fact that the action of certain bacteria may be limited to a local tissue reaction and thus a localized infection, while in others with a greater virulence the tendency is for the infection to spread through the lymphatics and blood vessels and then cause more generalized infections. Bacterio-

logical studies, then, of the lochia and blood are of great value in giving us a comprehensive plan of treatment. Blood counts should be frequently taken in order to check up the resistance the patient is making against the infection.

Various local measures have been advocated, such as vaginal and uterine douche, swabbing the uterus with different germicides, uterine packs, exploration for fragments of placenta and membranes, curettage, etc. Opinions differ as to the efficiency of these various measures. It is generally believed, however, that in the majority of instances they are more productive in spreading than in removing infection. It is the writer's personal conviction that the only indication for invading the cavity of the uterus is to control hemorrhage which is rare. Generally speaking, the various local treatments of the uterus provoke hemorrhage, lower the resistance and spread infection.

Infections which spread beyond the cavity of the uterus and attack the parametrium or pelvic connective tissue reach these spaces through the lymphatics and cause pelvic exudates or pelvic peritonitis. These are found in various places in the pelvis. Pelvic exudates are conservative processes and limit the spread of infection; the extent of the infection will depend upon the virulence of the organism and the resistance of the tissues. The treatment should aim at localization and limitation of spread by encouraging tissue resistance. Locally, in the acute stage an icebag over the lower abdomen, elevation to the Fowler position to drain the lymphatics, and opium to relieve pain are indicated; catharsis should be avoided, the lower bowel being kept empty by the use of enemata.

Milk injections, as suggested by Gellhorn for infections of the pelvis and general infections, are receiving favorable comment. The foreign protein activates the cells, stimulates the production of anti-bodies and increases phagocytosis. The injections are made with ordinary milk which is sterilized for ten minutes by boiling in a water bath. Injections are given into the gluteal muscle, 10 c.c. every third day. A moderate chill followed by a rise of temperature with nausea and headache are the phenomena that may follow. The reaction grows less severe with succeeding injections, and the number of injections vary from three to eight or ten, depending upon the condition

for which they are given. Blood counts are taken before and after the injections to note the rise in the leucocytes. A hyperleucocytosis of from 20,000 to 25,000 is generally noted.

It would seem from the reports of Gellhorn, Rawles, Mohler and others that milk injections have a definite place in infections of the pelvis and other infections,—that the effects of the foreign protein stimulates a cell activity which causes an increased tissue resistance. It hastens absorption of exudates, shortens the course of the disease and in some cases complete restoration to normal is established. Chronic pelvic exudates are reduced to a simple pathology and operative intervention can then be resorted to with less pathology to be encountered. Milk injections have been especially valuable in gonorrhoeal infection.

In all types of infection, local and general, the supportive treatment is an important factor—nutritious food, fresh air, sunlight, rest, stimulation, all contribute to the building up of the defenses.

Infections which spread beyond the pelvis become more general, such as peritonitis, thrombo-phlebitis and bacteriemia. When the infection spreads to the peritoneum as evidenced by tympany, vomiting, muscular rigidity, elevated temperature and rapid pulse, food should be withheld and the following measures resorted to:

1. Stomach lavage for vomiting, morphine to relieve pain and quiet peristalsis, icebags to abdomen.
2. Nutritive enema of glucose and soda by the Harris gravity method.
3. Hypodermoclysis of saline under the breasts to favor elimination and combat toxæmia.
4. Fowler position.

If the evidence suggests the presence of pus, cul-de-sac drainage as practiced by Pryor may be attempted; the cul-de-sac is widely opened, gauze drains placed in the lateral walls of the pelvis, and the patient placed in high Fowler position. The peritoneum is drained of seropurulent fluid, which reduces toxæmia, and the effect of the gauze in the lateral pelvic walls stimulates the formation of plastic exudates which tend to confine the infection to the lower pelvis. Good results are claimed by those who use this method in selected cases.

In the blood stream infections, we have the

presence of bacteria which, with their toxins, cause dissolution of cellular elements as well as degenerative changes in the heart, liver and kidneys.

Puerperal thrombo-phlebitis and bacteremia have an extremely grave prognosis; it is estimated that about 25 per cent of the latter end fatally, while in the former less than 50 per cent of the women recover.

C. Jeff Miller states that puerperal thrombo-phlebitis is found in from a third to a half of all women dying of infection. Miller makes a plea for early operation and reviews the literature from Freund's first article, in 1894, up to July, 1916. The tendency of the thrombosis to be limited to one vein is shown in Miller's tables. Of one hundred cases studied, the thrombosis was located in one spermatic vein in seventy-five cases.

Of the 197 operated cases collected by Miller, fifteen were treated by extra- and 182 by transperitoneal operation; the gross mortality was 51.6 per cent; the corrected mortality 33.9 per cent. The average mortality of pyemia by the expectant treatment, according to Miller, is between 60 and 70 per cent. Ligation of the veins is considered sufficient in pure septic thrombosis. Excision should be done for periphlebitic processes.

Polak believes that thrombo-phlebitis is a conservative process and leans to the expectant plan of treatment. In addition to this, he recommends small repeated blood transfusions if the resistance shows signs of failing.

From the reports of Miller, Williams, Turenne and others who have employed ligation of the thrombosed veins, this method evidently will have a place in the treatment of thrombo-phlebitis. Early diagnosis and prompt operation will no doubt reduce the present high operative mortality, which, from the reports, would lead one to believe that in many cases operation was resorted to as a last resort.

Our efforts in the main in combating these blood stream infections must aim at increasing the resistance by stimulating the production of anti-bodies and phagocytes in order to defend the body against the bacterial invasion. Attempts have been made to sterilize the blood current by injecting various chemicals and germicides directly into the blood stream. Within the last few years mercurochrome 220,

evolved by Young and his associates at the Brady Institute, has been extensively used to sterilize the blood current in various types of blood stream infections. In the collected reports of 211 cases by Young, Hill, and Scott, of infections and infectious diseases treated by mercurochrome 220 by a number of observers, the results are most encouraging.

The percentage of cures in Young's cases were greatest in infections due to *B. coli*, staphylococci and gonococci infections—about 81.8 per cent. It was less in gram-positive diplococci, including the pneumococcus—66.6 per cent; in streptococcus hemolyticus—53.8 per cent; and least in streptococcus viridans—33.3 per cent.

Piper has had considerable experience with mercurochrome, and states that there are certain micro-organisms which are destroyed by mercurochrome more readily than others; he has been unable to make any impression upon the streptococcus viridans.

In the hemolytic group, the pyogenes are routinely fatal. Piper believes that in some cases of sepsis, mercurochrome in proper doses will be of great value. He does not contend that the method will effect a cure except in so far as it is possible to increase the individual's resistance, by temporarily eradicating the micro-organisms from the blood stream, and says we can conceive of the possibility of a cure where the blood stream was sterilized and the local focus of infection extirpated at the same time. The dosage advocated is 5 mgs. per kg. of body weight, or 23 c.c. of a 1 per cent solution per hundred pounds of body weight given intravenously.

The solution should be made from the granular form in freshly distilled water. The solution should not be boiled, as disintegration may occur. The reaction following the intravenous injection is not severe, and frequently there is little or no reaction. The reaction consists of chill, headache, nausea, rise of temperature and diarrhoea. The initial rise of temperature is followed by an early and decided drop, which may reach normal. The early use of mercurochrome is urged when indications for its use arise.

The serum treatment of puerperal sepsis was introduced by Marmorek in 1895 when he discovered an antistreptococcus serum. Great hopes were entertained at that time for the

successful treatment by this method; unfortunately, the results have not been satisfactory. Since that time, other investigators have utilized polyvalent sera in the hope that numerous strains of streptococci would give more satisfactory results. More recently Bailey advocated the further use of polyvalent serum. Bailey emphasizes that the preparation of the serum must be efficient from a serilogic standpoint; the supply must be fresh, and desensitization must be carried out before its administration. With this precaution, the serum is practically harmless, although serum reactions are observed. The injection should be given slowly without dilution. The dose recommended is 100 c.c. every 24 hours; if serum sickness appears, no further treatments are given. If this dose is repeated each day for three or four days, a sufficient amount may be given before serum sickness appears. If the temperature rises in the post-partum period and remains above 103 for forty-eight hours, the dose of 100 c.c. should be given without waiting for the results of the cultures.

The mortality in six cases that gave positive intrauterine culture of streptococcus hemolyticus was 16.6 per cent.

In the second group of seven cases remaining, the mortality was 14.3 per cent.

In the two groups, thirteen cases in all, the mortality was 15.3 per cent.

Uncorrected death rate 21.4 per cent.

Bailey states that parametritis occurred so regularly in his cases that it seemed as though the serum had a tendency to localize the disease.

Inasmuch as blood stream infections cause destruction of the red cells and decrease in the hemoglobin, it is logical to assume that blood transfusion would at least temporarily raise these elements and increase the resistance.

Sir A. Wright says that immuno-transfusion surpasses ordinary methods of serum therapy in septicemic cases, inasmuch as we are dealing with compatible human blood, immunized in vitro, showing definite protective substances which can be incorporated in indefinitely larger quantities of blood transfused. They serve the double purpose of new blood and anti-bodies. Immunized transfusions are possible in chronic infections only.

Polak states that transfusion in infections would seem to serve the double purpose of

lessening the secondary anemias and supplying normally active leukocytes for temporary defense; it permanently raises the blood pressure, which helps to restore the functional activity of the organs which bear the brunt of defense. Polak believes that the poor results reported by some observers are due to the delayed transfusion where it was used as a last resort.

Small repeated transfusion of citrated blood has been the method of Polak's clinic;—250 to 300 c.c. are given every third day. The transfusion is preceded by a third of a grain of morphine, which diminishes the severity of the reaction. Some reaction occurred in 60 per cent of cases. Polak at the time of his first publication on transfusion in 1919 reported four cases of thrombo-phlebitis with one death, and seven cases of bacteriemia with one fatality.

The writer has had one case of thrombo-phlebitis and one streptococcus hemolyticus bacteriemia in which transfusion was used, both of which recovered.

CONCLUSIONS

The prophylactic treatment of puerperal infection must occupy the most important role, which would include:

1. A complete examination of the patient in early pregnancy, including pelvimetry.
2. The eradication of foci of infection, such as the tonsils, teeth, gonorrhoea, etc.
3. Abstinence of the marital relationship after the sixth or seventh month. This is a frequently overlooked precaution and is responsible for a number of unexplained cases.
4. Checking up the case in the latter months of pregnancy to determine as far as possible the outcome of labor, and formulating a plan according to conditions as they obtain.
5. The course of labor should be followed by external and rectal examinations, resorting to internal manipulation only upon positive indications.
6. When internal manipulation is necessary, scrupulous asepsis should be observed and traumatism reduced to the minimum.
7. Isolated cases of infection will occur in spite of all the measures we may observe.

In the treatment of localized infections, the natural defenses should be protected by:

1. Refraining from unnecessary intra-uterine interference.

2. By encouraging retraction of the uterus and drainage by:

- (a) Administration of ergot and pituitrin.
- (b) Posture for drainage.

Infections which have a tendency to provoke local inflammatory conditions, such as gonococcus, staphylococcus and *B. coli*, should be treated conservatively, and local tissue retraction encouraged by:

1. Posture for drainage.
2. Icebag over lower abdomen in acute stage.
3. Injection of foreign protein or milk to stimulate phagocytosis.
4. Avoidance of catharsis.
5. Surgical intervention to effect drainage when suppuration occurs.

In the treatment of general infections, thrombo-phlebitis and bacteriemia:

1. Nutrition, good nursing, air and sunshine are fundamental.
2. Transfusion of well-matched blood in small repeated doses is, to me, the most rational plan of treatment.
3. The intravenous use of mercurochrome can be used as a therapeutic measure with the hope of temporarily sterilizing the blood current and allowing the resistance of the patient to build up.
4. The use of gentian violet, bichloride and other intravenous therapy can be employed. It is largely a question of one's individual experience as to the results obtained.
5. The treatment with serum in my hands has been disappointing. The larger doses of polyvalent serum suggested by Bailey, given early in the course of the disease, may prove of value.
6. Ligation of the thrombosed veins, as recommended by C. Jeff Miller, Turenne and others, would seem to have a place where the diagnosis can be made early. I have had no experience with this method.

Stuart Circle Hospital.

DISCUSSION OF PAPERS ON PUERPERAL INFECTION BY DRS. LANKFORD, CALKINS AND GRAY.

DR. GREER BAUGHMAN, *Richmond*:—I think if I had written these papers myself I would have made very few changes in what the gentlemen have suggested to you. The broad principles are all there; I failed to note the absence of a single one. Of course, each of us has a little different approach, but the broad principles have certainly been well stated. I am just the bell sheep that is leading the way for discussion. I hope some of you gentlemen will differ from the opinions expressed by these three men, and that we shall have a real verbal fight.

Over a period of ten years we had 2,341 clinical cases, with 13.1 per cent infection. By infection we mean any woman during the puerperium whose temperature rises above 100.4 after the first physiological reaction. Out of that number I am almost ashamed to tell you how few deaths there were, because I think it was pure luck. We had only two deaths. There was an incidence of about one death from puerperal infection in a thousand births. Before you discuss that, let me acknowledge that our women are a little better and stronger and more resistant to infection than elsewhere. Up to this time, the question of infection has certainly not been a serious one in our clinic. I think the reason we are getting good results along the line of low infection is because, in season and out of season, we have taught the students that they can prevent infection with the two simplest things. One thing you carry always with you, and the other thing you carry in your obstetrical bag. The thing you carry always with you is your arms and hands, and the other thing is a rubber glove.

With our two arms and hands we make external examinations, reserving internal examinations for those cases that we expect to operate upon. With external examination alone, we do not make uniformly as perfect a diagnosis as can be gotten by both external and vaginal examinations, but sufficiently accurate for all working purposes. Secondly, instead of making routine vaginal examinations, we make rectal examinations. The reason for making rectal examinations is perfectly obvious—to keep out of the vagina. Whether you accept Döderlein's idea, that during the last few weeks of pregnancy the vagina takes over a sort of prophylactic action, or whether you think the vagina and uterus are full of bacteria, it makes no difference, because if you mechanically enter that vagina, if there be any bacteria you will certainly shove them ahead of your hand. Unless you are a much clever examiner than I am, or the people I know of, you will carry them into the uterus on your examining finger. I think what Dr. Lankford has told us about the difference in incidence of puerperal sepsis in the cases of doctors and mid-wives is due to the fact that mid-wives do not examine their patients, and doctors do.

The second thought I want to give you is on the question of treating these cases after they have developed. I want to emphasize what Dr. Lankford or Dr. Calkins said—we must know with what we are dealing. We must not be embarrassed at having infections, because they will come sometimes whether the patients have been examined or not. We must know that we are dealing with infection, and not think that the bowels are a little wrong and the patient will be all right in a few hours. Let us take the opposite view, that where the temperature rises to 100.4, after the first active rise, the case is an infection, unless the fever is coming from the tonsils or teeth or something else. Let us change our point of view, and take our responsibilities. So long as we are thinking that the bowels are the causative factor, we shall not be doing all we can to make the woman get well quickly.

To my mind there are two principles involved in the treatment of puerperal infections. The first principle is to try to increase the resistance of this particular woman in order that she may cure herself. Of course, to be honest, that is the way we get rid of all sorts of diseases. The second thing is to put salt on the tail of the bacteria. How do you increase the woman's resistance? What is probably the best way? Let us see what nature is doing. I believe that the increased leucocytosis to which

Dr. Calkins called special attention in his paper is a plan of nature to give that woman more leucocytes at the time of her delivery, because Nature knows that a lot of doctors are going to examine her and run a chance of infecting her. Nature learned a long time ago that the woman, during delivery, is apt to become infected and, consequently, she has added to the number of leucocytes to overcome that particular thing. If that be true, how can we increase the leucocytes of this individual?—because it is with leucocytes that we cure. One way, and the general way, is to build up resistance, as has been suggested. Food, in spite of temperature, if they can digest it, and all they can digest; sunshine, fresh air, rest, cheerfulness—in short, good care—are all essential in building up resistance. Another way is by the injection of foreign protein. The injection of sterile milk is very effective. There is another method, which does not seem to increase the leucocytes so much, but does other things well, and that is the injection of ten c.c. of human unmatched blood into the woman's back, subcutaneously. This injection of blood not only introduces protein, but iron as well. About five or ten c.c. under the skin will disappear in twenty-four hours with very little discomfort—in fact, not as much as from the milk—and will give a right considerable kick. If the case be extremely anemic, I give blood; if not, milk. Meanwhile, I am preparing and having that patient matched for a transfusion, which is, I think, the next step in the treatment. For Heaven's sake, have the blood well matched, because you can jerk these women into kingdom come in no time. Use direct blood, instead of citrated blood.

DR. M. PIERCE RUCKER. *Richmond*:—Like Dr. Baughman, I find my chief function is to agree with these three papers, but there are several points I should like to emphasize, in Dr. Lankford's paper, especially. One is the question of education, and the unbalanced education our medical schools are giving, turning out these men short, as he says, in obstetrics. That is a very important point, and I am glad he brought it out.

Another point Dr. Lankford mentioned, but, I think, did not emphasize enough, is the resistance of the patient. I think we have perhaps been too intent on washing our hands, etc., and have forgotten the patient, and have not built up her resistance as we should.

As a matter of historical interest, and without detracting in the least from the credit due either Oliver Wendell Holmes or Semmelweis, we ought to bear in mind that Charles White, of Manchester, was probably the pioneer in this work of the prevention of puerperal sepsis. In 1833 he wrote a treatise on this subject, and when reading that treatise now it is curious to find how little we have done except to name the bacteria that cause the trouble. That is about the only thing we have done since Charles White's time. You may remember that he lived in the time when it was customary not to change the bed linen, but to cover the patient up with blankets and keep the windows shut, for fear of the patient's catching cold, etc. He insisted upon fresh air, clean water, clean bed linen, nourishing food, and posture. He made his patients sit up to eat and sit up to nurse their babies, and got them out of bed not later than the second or third day. This treatise, "A Treatise on the Management of Pregnant and Lying-In Women and the Means of Curing, but More Especially of Preventing the Principal Disorders to Which They are Subject," was so good that it went through several editions, and was translated into

several foreign languages. Oliver Wendell Holmes mentions White's results in his classical essay on the contagiousness of puerperal fever, citing Dr. Charles White's results as proof that it is a contagious disease. Dr. White's methods were taught rather widely in England, so that his pupils got similar results. Boer, who was trained in England, had a mortality of 1.3 per cent in the thirty years (1789-1819), he was in charge of the Allgemeines Krankenhaus, in Vienna. Under Klein, Boer's successor, the mortality rose to nearly 10 per cent, and it was not until Semmelweis took charge, in 1848, that the mortality fell, his figures being 1.27 per cent among 3,556 patients.

In regard to Dr. Calkins' paper, I should like him, in closing, to say something about the leucopenias that some of these cases have. From my experience, I rather fear the cases that have, instead of a leucocytosis, a leucopenia—when the white blood cells drop to 3,000 or 4,000, or something like that.

There is another type of puerperal sepsis that I think is not generally recognized as puerperal sepsis. Such cases as that Dickens so graphically describes in *Dombey and Son* were formerly attributed to exhaustion. Fitzgibbons, of the Rotunda Hospital, says you should not diagnose these as shock or exhaustion until you have made a culture from the peritoneal cavity. He says you will often get a pure culture of streptococcus from the peritoneal cavity, even when macroscopically no lesions are noted. I think that is quite important, and that we ought to bear it in mind.

In regard to the treatment, I feel very hopeful about these milk injections that Dr. Gray emphasized. Since hearing Gellhorn's original paper, I have tried it with a good deal of success. It works out very nicely. I think the point is that you should not wait too long before starting the treatment. As Dr. Baughman says, you ought to make your diagnosis early, accept your responsibility, and start treatment promptly.

DR. BURNLEY LANKFORD, *Norfolk*, closing the discussion: I should like to say a word or two about drainage. We know the value of drainage as a broad surgical principle, but it is questionable with me whether we take advantage of it in our postpartum cases. It seems to me that the head of the bed should be elevated in every case as soon as the woman reacts from the strain of labor. In addition to that, several times during the twenty-four hours she should be turned on her face and kept in that position for half an hour or an hour. We were taught, several years ago, that as soon as the woman was delivered, particularly if she had any lacerations, she should have the knees bound together. If you think, you will see that if the woman keeps her knees together the upper part of her thighs effectively closes the vagina and makes drainage very difficult, if not impossible. Another thing is that if the bed sags a little, the hips, being the heaviest part of the body, will sink down, the vagina will be higher than the uterus, and a pocket will be formed between the vagina and the cul-de-sac in which the discharges will be retained.

We should recognize that it is not possible to prevent every case of puerperal sepsis. I think we should do as Dr. Baughman says, accept every case as an infected case, take the responsibility, and treat accordingly.

A word in regard to pelvimetry. I think pelvimetry in early pregnancy is certainly of value in the preventive treatment of sepsis. I think the only pelvimetry of any value is internal pelvimetry (with two fingers), and outlet pelvimetry. We can find

out the condition of the pelvic canal only by careful, gently conducted examination, not when the woman first comes to you, and not just before labor, but after Nature has partly prepared her vagina for the labor. The best time for internal pelvimetry is at the seventh month, and that should certainly be done.

As to immunity, we should certainly give more attention to the relief of pain and of long drawn out labors.

Polak has proved from animal experimentation that animals, if given a certain dose of an infective organism after they have been subjected to fatigue or hemorrhage, will succumb, whereas animals not so subjected will not succumb. Certainly any woman who has gone through the fatigue of a long labor and suffered with trauma and hemorrhage at delivery, is in a condition to become infected. We should see that they do not become fatigued, and we should repair lacerations immediately afterward.

As one of the speakers said, sufficient diagnosis for working purposes can be had by abdominal examinations and rectal examinations in *most* cases.

DR. L. A. CALKINS, *University*, closing the discussion:—I want to indorse the routine elevation of the head of the bed after delivery, as soon as the first shock of delivery is over, and I want more emphatically to indorse having the patient lie on her abdomen as soon as she comfortably can for two or three periods during the twenty-four hours. It is certainly an aid in drainage, and also helps to prevent retroversion.

As to Dr. Rucker's question about leucopenia, I do not believe that a leucopenia after delivery means anything different from a leucopenia in any other kind of infection in which you expect a leucocytosis. It simply means that the infection, momentarily at least, is so overwhelming that the body can not react and produce a leucocytosis.

I think if we carry away just two ideas from this symposium it will have been worth while. The first idea is that we should be very active in our prevention of puerperal infection, and that we should be very active in diagnosing puerperal infection. The second idea is that we should be rather passive in our treatment of labor, and passive in our treatment of puerperal infection. I mean by that, we should not make too many manipulations, whether it be vaginal examinations during labor or local treatment after infection occurs. If we remember the saying of a very famous teacher and apply it to our practice in this respect, we shall get better results. This exhortation was, "If you can not do them any good, don't do them any harm."

DR. B. H. GRAY, *Richmond*, closing the discussion: I tried to emphasize in my paper that the natural defenses that Nature throws out in infections should be respected. The least interference may sometimes undo these defensive processes. Treat them conservatively.

When infection occurs, get to work and try to push the resistance. The greatest good we can accomplish is by helping out by those methods which will increase the resistance and thereby kill out the infections.

Operative procedures should be resorted to only when the infection is localized, and then drainage of the circumscribed area is the object to be accomplished.

The use of serum for the most part has to me been disappointing. When used, it should be given early in the disease and in larger doses than have heretofore been recommended. Sensitization tests

should be carried out before using serum, for by this caution fatalities will be guarded against.

In pelvic thrombophlebitis, ligation of the thrombosed veins, as advocated by C. Jeff Miller, Turenne and others, would seem a rational procedure in those cases where a diagnosis can be arrived at early.

At the present time, the operative mortality is about fifty per cent, which is little or no improvement over the cases treated conservatively.

DIAGNOSTIC STANDARDS OF THE VIRGINIA FIELD CLINICS.*

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and

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The diagnosis of tuberculosis in its incipency is one of the most difficult problems confronting the internist. Mistakes are most frequently made on children and in the adult non-bacillary cases. No classification or standardization of methods may be entirely satisfactory. I hope, however, that a discussion of the system we use in making a diagnosis in our clinics will create an understanding that will let us work together.

Dr. Lawrason Brown, of Saranac, suggests that at least one of the following signs or symptoms be present before a positive diagnosis is made, viz.,

1. Tubercle bacilli in sputum.
2. Moist rales above level of second rib.
3. Expectoration of a drachm or more of blood.
4. Parenchymatous X-ray lesion.
5. Pleurisy with effusion.

These have been generally accepted by sanatoria throughout the country as a working guide in the determination of tuberculosis. A system that is practical for a corps of specialists with well equipped laboratory and X-ray departments is, however, of little benefit to the private practitioner or dispensary clinician with equipment limited to stethoscope, thermometer, scales, and fountain pen. We believe, however, that even with this limited equipment a trained man will be able to diagnose or suspect the earliest exudative lesion, the condition that exists before tissue destruction begins. If we always wait to prove one of the aforementioned diagnostic criteria, we have in many cases allowed our patient to progress from the curable stage to one of hopeless chronicity, or to untimely death.

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One of the most important steps toward diagnosis is the taking of a complete history. This is too frequently ignored or dismissed with a few perfunctory questions. Phthisis is no respecter of persons, yet very often some knowledge of the occupation, home conditions—domestic tranquillity or incompatibility—kind and quantity of food, general surroundings, and economic conditions, materially aids diagnosis. Modern science has proved the fallacy of hereditary origin in pulmonary tuberculosis. It is, however, of definite importance when we hear that a parent was tuberculous during the infancy or childhood of the patient, or that some other kinsman or an employee of the household was known to have had tuberculosis. Apparently, a child with a tuberculous mother is twice as apt to become infected and break down with tuberculosis as if his contact were on his father's side. The following figures taken from our case histories indicate that intimacy of contact is an important and deciding factor in infection:

With positive parental contact.....	267
Contact with mother.....	175
Contact with father	92

Up to five years of age, the child is a house animal and its mother is its closest companion. Paternal contact differs in that the father spends comparatively little of his time in his home. Childhood infections are held responsible for about 90 per cent of adult disease. Infection is usually harbored in the pulmonary lymph glands, causing no trouble until the defensive forces of the body give way because of unusual physical or mental strain, or from malnutrition or some debilitating illness.

Among precipitating illnesses, influenza heads the list. There can be no doubt that the 1918-19 pandemic was the spark that rekindled the fire in many an arrested or quiescent case. Records of 1,200 positive cases show that 20 per cent gave influenza as the exciting cause of their illness. Pneumonia will come second, because of its high incidence, and its devitalizing effects on its victims. Of childhood diseases, measles and whooping-cough, on account of their catarrhal nature and their effect on the lungs and bronchial tree, most frequently render children susceptible to tuberculosis.

Symptoms immediately preceding the illness are of special importance, and are for the most part toxic in origin. They are, in the order

of importance, fatigue, impaired appetite and digestion, loss of weight, and inability to perform with ease the usual duties. An unexplained loss of weight beyond the normal seasonal variance, accompanied by an afternoon rise of temperature and acceleration of pulse, must be regarded as suspicious. An afternoon rise of temperature has long been considered a valuable symptom. Accurately to estimate its significance, it is important to have the patient keep a four hour record, beginning at 8 A. M. A constant rise of a degree above normal in the afternoon, or a discrepancy of two degrees between morning and afternoon, is of strong diagnostic help. Children normally show greater susceptibility to external atmosphere than do adults. It is not unusual to find groups of healthy children on hot afternoons with mouth temperature of 100° F. This is more frequent in those who have not had their tonsils and adenoids removed.

I would like to emphasize the frequency with which fatigue is found to be first symptom of tuberculosis among our clinic patients. I do not mean physiological tiredness that follows mental or manual work, but an over-powering sense of weariness that makes the unhappy victim feel as though further exertion were impossible. There are other chronic debilitating diseases which produce this symptom, but none so frequently or so profoundly as tuberculosis. Generally associated with it is impairment of appetite and distaste for articles of food formerly enjoyed, with a special aversion for fats. Gastric disturbances are common, with flatulence and hyperacidity.

A close analysis of the patient's history on the preceding points is preliminary to the examination. The first essential in the latter is to have the patient stripped to the waist. The practice of examining men with their shirts on and women through their shirt-waists is mentioned only to be condemned. It will take all your faculties to discover the earliest lung changes with only the soft tissues and bone between you and the lesion. Why add to your difficulties layers of calico or madras?

It is best to seat the patient on a revolving stool facing a good light in a comfortable room. Inspection of chest configuration is useful in directing our suspicions; but tuberculosis may be present in any type of chest. The long flat phthisical chest of Hippocrates fre-

quently waits to make its appearance until after even the neighbors have made a diagnosis; but we must look for the early lesion. Asymmetry of form seen in unilateral deepening above the clavicle or a flattening or retraction in the second or third interspace, the so-called hilus dimple, or restricted expansion, give us valuable information to underlying pulmonary disease.

Palpation is of little help, as vocal fremitus is apt to be confusing in early cases. It is, however, of value in locating the apex beat of the heart and in determining muscular rigidity.

Light percussion is of value in bringing out differences of resonance at apices. It must be borne in mind that the note at the right apex is normally less resonant and is higher pitched than at the left. The earliest demonstrable changes are impaired resonance and narrowing of the normal strip of resonance across the shoulder, the so-called Krönig's isthmus. Percussion should be carried from below upward, for the lesion of tuberculosis is most often at the apices; and minor shades of impairment are best recognized when going from normal to abnormal.

Tuberculosis should be diagnosed before there are any rales. This may sound like a radical statement, but it is perfectly possible to make diagnosis on changes in breath sounds and other signs previously mentioned. If we wait for rales, we in too many cases allow our patient to progress into the moderately advanced class, with the odds greatly increased against permanent cure. What, then, are the earliest auditory changes? The inspiratory murmur is feeble or rough in quality, the so-called granular type of breathing; the expiratory phase, which is normally very short and barely audible, is prolonged and high pitched, and simulates very closely bronchovesicular breathing; the voice sounds may be increased or diminished depending on the air content of underlying tissues. In order to bring out the fine rales and mucous clicks inaudible in ordinary or deep breathing, have the patient exhale, cough and draw a deep breath, repeating the procedure while you carefully listen to every portion of the chest. In no other way can you so readily bring out the earliest positive diagnostic signs.

Cases that show any of the absolute signs are without a doubt tuberculosis. But there

are many patients with histories of slight streaks, persistent cough, bronchitis, asthma, under-weight, fatigue, failing appetite, dry pleurisy, fistula in ano, or prolonged exposure in childhood or after maturity. These patients, even though definite physical findings are absent, should be kept under constant supervision while every effort is made to build up their defensive forces by rest, hygienic surroundings, and correction of any obvious defects, such as bad tonsils and carious teeth.

The stumbling blocks in the differential diagnosis of tuberculosis are syphilis, myocarditis, hyperthyroidism, and focal infections. The patient with syphilis will often give a history of initial lesions; will be more apt to complain of dizziness, darting pains in limbs and bones, confused mental states and neuralgias. On examination, any one of the following will suggest syphilis: enlarged epitrochlear glands, perforated palate or septum, old tibia scars, fixed, irregular, or unequal pupils, irregular knee jerks, and unsteady gait, with little or no loss of nutrition. The presence of Hutchinson's teeth in children is very suggestive of congenital lues. Routine Wassermann examinations should be made where any of the syphilitic signs exist.

A great many cases of sub-acute or chronic myocarditis have followed the influenza epidemic. Many of these people are suspected of being tuberculous. We find among them histories of slow convalescence following influenza or pneumonia, chronic tonsillitis, or recurrent attacks of arthritis with indefinite precordial pain, palpitation, varying degrees of dyspnoea, and inability to do any physical work without exhaustion. In this last respect they differ from the tuberculous, whose fatigue follows and does not accompany the exertion. Examination shows disturbed rhythm, low blood pressure, and functional murmurs, with little or no disturbance of temperature.

Mild hyperthyroidism is very difficult to differentiate from early tuberculosis, since the symptoms may be identical. Extreme nervousness with a pulse rate of 130 or more, slight enlargement of the thyroid gland, full eyes, fine digital tremor, and a relatively high pulse pressure, with negative lung findings would not justify a positive diagnosis of tuberculosis, although it is necessary to keep the patient under observation for many months. High meta-

bolic rate may be a diagnostic indication in some cases, although many thyrotoxicosis cases are reported to give normal readings.

Focal infections in the facial sinuses give the differential symptoms of unilateral headaches, areas of tenderness over the infected sinus, and a copious muco-purulent or blood-streaked discharge from the nose. Such symptoms would call for transillumination of the sinuses. The presence of crowned teeth, Riggs' disease, or unerupted wisdom teeth in people suffering from chronic toxemia, would indicate special diagnostic measures to eliminate these as causative factors. Realizing that even the earliest symptoms of tuberculosis are toxic in origin, we follow the practice in the clinic of making a tentative diagnosis in all cases of focal infections, thus placing the patient in the hands of his physician for further study.

Tuberculosis in children produces a different clinical picture from that seen in adults, and constitutes an entirely different and more difficult diagnostic problem. The disease is essentially and primarily lymphatic, whether the manifestation is osseous, articular, abdominal, or pulmonary. In infants under three years, the process is usually an acute infection of a generalized miliary tuberculosis, with meningitis practically always fatal, or the abdominal form with symptoms of pyemia, and a mortality of 80 per cent. In the childhood forms, the glandular system is most often affected with the greatest incidence of infection in the tracheo-bronchial and cervical glands. Sixty per cent of the children between the ages of seven to fourteen who have visited the clinic in Virginia, have had palpable cervical glands. The majority of these are due to infections in the teeth, throat, and post-nasal space. We do not diagnose them as scrofula unless they are unusually large, have become matted, or have suppurated, and appear in children who are mal-nourished, anemic, and febrile. When persistent enlargement continues after all possible foci in the throat and nose have been removed, it should be accepted as tuberculous in origin. Enlarged glands posterior to the sterno-cleido-mastoid muscle are rarely tuberculous. In children under five years of age, a positive von Pirquet may be indicative of tuberculosis, but is not conclusive evidence, for tests made on large groups of children showed a high percentage of positive re-actors.

The physical sign of enlarged tracheo-bronchial glands is depression in the second interspace near the sternum when the breath is held after inspiration. This dimpling, with paravertebral and para-sternal dullness and increased transmission of whispered voice from the seventh cervical to the fourth dorsal vertebra, when the bell of the stethoscope is placed directly over the tip of the spinous process, accompanied by more or less harshness over the balance of the lungs, is indicative of childhood tuberculosis of the hilus region. Rales are seldom heard unless there is an associated bronchitis, and they have a tendency to disappear after deep breathing and cough. If persistent rales are heard over the upper lobes, the case is no longer of the juvenile type and the prognosis is exceedingly grave.

Children 10 to 15 per cent underweight, with a constantly recurring evening fever, fickle appetite, aversion to milk, undue fatigue, mental depression or anemia should be considered potentially tuberculous and be treated as such. Careful laboratory work should exclude intestinal parasites, kidney involvement, and other probable causes. While the study proceeds, the child should be put on the cure at home. X-ray examinations are very useful in determining hilus thickening and parenchymatous lesions. It cannot, however, be used as an index of activity, as the symptoms and appearance of the child alone can do that. Sputum examinations are of no service—small children practically always swallow their sputum, and among older children the sputum is seldom positive.

In all our clinic work, we realize that we must depend upon the patient's physician to follow our tentative diagnosis with a more careful study of the case. In the brief time at our disposal, it would be impossible to make even a tentative diagnosis of the early case, unless we could count upon the co-operation of the local physicians. Since, however, the object of the clinic is to find the hitherto unsuspected case and to place him under the care of his own doctor, we give the doctor full information of our tentative findings on the diagnostic slip which is carried to him by the nurse immediately after the clinic.

We class patients as positive who give a sufficient number of the following symptoms or signs:

1. Fatigue, slight afternoon temperature, impaired digestion, loss of appetite and weight.
2. History of contact in childhood.
3. History of hemorrhage of a drachm or more.
4. Asymmetry of form, or restricted expansion.
5. Impaired resonance and narrowing of the normal strip of resonance across the shoulders.
6. Barely preceptible fine rales and mucous clicks.

In the "suspicious" group we place all patients who give a history of fatigue, contact in childhood, or "streaks," when even the slightest change of chest form or sounds make us suspect underlying disease. It is to this group that the clinic is of most service. These patients have ordinarily not considered themselves sick enough to go to their own physicians. They frequently come to us out of curiosity. Among them are to be found many of the earliest and most curable cases. Their cure depends upon the patience and sympathy with which their own doctors continue our initial examination. Could we not count upon help of the local doctor, we should feel ourselves no longer of service. This is true of the whole field of our work. Our clinic physicians never see the patients after the examination. We place them in hands of the practicing physicians, together with a report of our findings and our recommendations. Through the clinic propaganda, we endeavor to teach the people to go to their doctors before they feel seriously ill. We hope in this way to insure a diagnosis of tuberculosis in the earliest stages. Here, again, our success depends upon the co-operation of the doctors.

During the past nine years the death rate from tuberculosis in Virginia has fallen a little over 33 1/3 per cent—from 185 per hundred thousand to 112 per hundred thousand. It can only fall rapidly where the people are educated in early symptoms and in methods of cure. It is because of this that we make tentative diagnoses under clinic conditions. Through your co-operation in the further care of the patients thus found, we will together attain the object of our work—the control of the scourge which even now is taking an annual toll of 2,700 lives in Virginia.

INDICATIONS FOR AND AGAINST ABDOMINAL DRAINAGE.*

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Drainage of the abdominal cavity presents certain definite problems. The most important of these is whether in some cases to leave in drainage or close the abdomen without drainage. In a large number of cases there is, without question, no indication for drainage. In others, drainage is most clearly indicated. It is in the border-line cases that we are confronted with some uncertainty. Here, authorities differ, without giving very definite reasons for the faith that is within them, except that the surgeon should exercise good judgment. There should be something more definite. For this reason, I am presenting this paper, with the hope that a free and full discussion will tend to clarify the question.

In the consideration of this subject it would be well to review briefly some of the principles involved in abdominal drainage.

A few years ago the peritoneum was considered an absorbing membrane only, but now it is recognized that this membrane has a resisting power and that it is capable of overcoming, by this power, many abdominal infections, since the resisting power of the peritoneum for re-absorption and its power of defense has been recognized, less abdominal drainage is now being used than formerly. It is a fact, however, although the peritoneum has this natural protective quality, that drainage should be employed in some instances to assist the membrane in its fight to overcome bacterial invasion.

The principles of peritoneal drainage have been thoroughly discussed by Horsley, Lahey, Payne and others.

The peritoneal cavity is an enormous lymph space, and, under altered physiological conditions, is capable of supplying a great amount of exudate or transudate, which is made up of serum and lymph, rich in phagocytic cells. The presence of drainage material in the peritoneal cavity, through irritation, alters the physiology of the parts adjacent to this foreign body, and causes an out-pouring of this exudate or transudate. Thus, drainage material after being placed in the peritoneal cavity, becomes completely enmeshed or walled-off with a dense layer of fibrin, which is impervious to

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the passage of fluids. The drainage material is usually thus walled-off within six to twelve hours or more, the time being determined by the defensive reaction of the tissue and the kind of drainage material used. The result obtained is the formation of an impervious sinus around the drainage material from the area at the end in the abdomen to the point of exit. This would indicate that the peritoneum does not drain in the general acceptance of the term. Also, it shows, as stated by Lahey, that a drain, to be of value, must be placed within one or two inches of the point of origin of the infection. One exception to this is the use of a drain in cases of considerable abdominal pressure. Here the large quantity of exudate and complicating peristaltic paralysis brings about abdominal pressure, and the abdominal pressure weakens the tissue resistance by a severe toxemia and by diminishing the blood supply to the parts. It is a vicious cycle, which is temporarily relieved by opening the abdomen. The use of a drain in this instance during the first few hours after operation before impervious adhesions are formed about the tube, will materially assist in preventing an immediate return of the pressure condition.

It is obvious, therefore, that the use of a drain in the abdomen is limited.

The general advantages and disadvantages of the abdominal drain should be given consideration.

A fecal fistula may follow the use of a drain, especially if the material is placed adjacent to an injured intestine. A secondary infection may follow the drain from the outside. The use of the drain unquestionably promotes the formation of adhesions, prolongs convalescence, is conducive to operative ileus, and may weaken the abdominal wall so as to make a post-operative hernia more probable. Willis, in his experimentation on dogs with abdominal drainage, reports that, in addition to other results, the omentum may become attached to the adhesions around the drain. In view of these disadvantages, abdominal drainage should be used only when needed. In primary closure, the after-treatment is less painful, shock is diminished, and the time of convalescence is shortened. There are fewer complicating fistulas, a smaller number of post-operative hernias, and less extensive resulting adhesions.

Primary closure of the abdomen is, therefore, the method of choice, unless there is a specific indication for drainage.

Authorities differ about the use of drainage in border-line cases, without being definite. Some say, "When in doubt, drain." An even larger number say, "When in doubt, do not drain." The use of either expression suggests that there is an acknowledged doubt in regards to drainage in many of these cases, and tends to the acceptance of the fact that there is such a doubt, without trying to determine definitely which cases will do better with drainage, and which will do better without it.

In determining the origin and extent of an abdominal infection, I might call attention to the suction apparatus. The use of this procedure removes the exudate, and thereby not only assists in a curative way, but enables the operator, through inspection, to better judge the case. I would like, however, to mention one element of danger in the use of suction. The suction tube should not be carried from an infected area in the abdomen to other parts which do not show signs of infection. If this caution is not observed, infection may be spread instead of controlled.

Wilensky and Berg claim that the advisability for or against drainage in doubtful cases can be determined by taking smears direct from the infected peritoneal surfaces, and making a hasty examination of them. This is open to criticism because it is hard to estimate the virulence of the infection and the resistance of the patient. It would be a questionable guide, even when the examination was made by a trained bacteriologist.

Drainage of the abdomen principally accomplishes three objects: first, establishment of a sinus down to some one small area; second, production of walling-off adhesions; and, third, relief of abdominal pressure. Drainage, when used, should have for its object one or more of these purposes.

From the results of our work and the reports of the authorities referred to in this paper, we believe that drainage should only be used in those cases which would be benefited by a sinus down to a certain area, in those cases where walling-off adhesions would localize the infection, and in cases of considerable abdominal pressure.

From a clinical standpoint, therefore, drain-

age would be limited practically to abdomens exhibiting the presence, or symptoms indicating the development of, the following conditions:

1. Necrotic tissue, or localized focus of infection.
2. Intra-abdominal pressure.
3. Exposed extra-peritoneal or oozing spaces.
4. Intra-abdominal abscesses.

From these facts it is evident also that all abdominal conditions, other than those specifically indicating drainage, will give the best results with primary closure.

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CUTANEOUS TESTS IN THE DIAGNOSIS OF SYPHILIS.*

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Cutaneous tests are being used frequently to determine the specific etiology of numerous affections. The causative agents may be bacteria, fungi, protozoa, drugs, and various vegetable or animal products. Jenner was the first to describe cutaneous hypersensitiveness. He noticed that when a person, who had previously had smallpox or cowpox, was vaccinated there soon appeared a local reaction in the form of "cuticular inflammation," and that the vaccination in these cases ended unsuccessfully. It is now known that this phenomenon is related to the individual's specific immunity to the vaccine virus. This hypersensitiveness is allergic or anaphylactic in nature. The cells of the skin share in the general protective processes and thus become sensitized. When the antigen, called allergen, is applied intradermally, a localized shock is produced. The exact mechanism of this reaction is no better understood than allergy in general.

Von Pirquet's discovery that tuberculin gave a specific cutaneous reaction in tuberculosis directed attention to this type of diagnostic procedure in infectious diseases. Tests performed with allergen prepared from the protein of various bacterial and protozoan parasites have given definite and specific reactions. It is not surprising, when one considers the dermatophylic tendencies of the treponema pallidum, that soon after its detection cutaneous tests were attempted in the diagnosis of syphilis.

The first attempts to use cutaneous tests for syphilis were made with extracts of tissue containing treponema pallidum. The results were contradictory and not satisfactory.

In 1911 Noguchi¹ proposed the name luetin for an emulsion of pure cultures of treponema pallidum, which he employed for obtaining a skin reaction in syphilis. He concluded that "luetin produces a cutaneous reaction in syphilitic and parasyphilitic patients that is most constant and severe in the tertiary and hereditary affections." It was usually positive in animals which had been inoculated with cultures of treponema pallidum, but it was rarely positive in animals with active syphilis or in early

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stages of human syphilis. The test was positive in a higher percentage of treated cases than in untreated cases, and it was sometimes positive in non-syphilitic patients.

Following the introduction of Noguchi's luetin test, a number of workers reported favorably on its application. Sherrick,² in 1915, and Cole and Paryzek³, in 1917, demonstrated that, following the ingestion of iodides and certain other salts, positive luetin reactions were obtained in non-syphilitics; also that starch and agar would give similar results in patients receiving iodine-containing drugs. Other investigators reported similar results. In spite of the doubt which these facts threw on the specificity of the test, a few continued to use this method in the diagnosis of syphilis. Also, Noguchi⁴ recently reiterated his former claim in regard to the reliability of the test.

Kolmer and Greenbaum⁵, in 1922, found that luetin and ascites agar yielded reactions in syphilitic subjects of the same kind and degree. They also found that intracutaneous injection of a vaccine of washed treponema pallidum suspended in saline solution did not yield specific allergic reactions.

Recently⁶⁻⁷, at the University of Virginia Hospital, the work of Kolmer and Greenbaum was repeated and results similar to theirs were obtained. Eighty-five subjects were tested with luetin and luetin control. The test was positive in only 41 per cent of the cases of syphilis, and was positive in 6 per cent of non-syphilitics. The control was positive in 59 per cent of the syphilitics and 31 per cent of the non-syphilitics. The contradictions between the test and diagnosis, between control and diagnosis, and between test and control clearly indicated that the luetin test is not specific and is not a reliable diagnostic procedure.

A series of 139 patients were tested with saline suspension of treponema pallidum free from culture media and also a similar suspension in one-twentieth normal sodium hydroxide. It was thought that dissolving the protein of the organism in the alkali might cause it to produce a specific reaction. The tests were positive in only a small percentage of the syphilitics and a relatively large percentage of false positives were obtained in non-syphilitics.

Another series of twelve syphilitic patients was tested with a defatted vaccine of treponema pallidum. The organisms free of culture

media were extracted with toluol before the suspension was prepared. In none of these cases was a positive skin reaction elicited.

The explanation of the negative results in these experiments is either that there is no cutaneous hypersensitiveness produced by a syphilitic infection, or that the parasite when grown on culture media loses its allergic producing property.

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THE CHALLENGE OF THE PATIENT WITH CHRONIC DISEASE.*

By R. L. RAIFORD, M. D., Sedley, Va.

In looking through the advertising pages of one of our leading medical journals recently, I was impressed with the number of hospitals and institutions stressing their desire to treat chronic cases, and especially those with a nervous or mental bent. For this there can be only one fundamental reason and that the fact that there are so many of this class of patients needing treatment.

The average doctor is pretty well qualified and equipped for treating acute cases, but his relations towards the old chronic are such as to repel rather than attract. In fact, he just naturally hates to see them come in. Consequently, these unfortunates, being little satisfied with treatment by the legitimate profession, gradually gravitate towards the quack and fakir, and the more blatantly they are promised impossible cures, the more persistently they flock in this direction. They are desperate in their efforts to get relief and are willing to try most anything once and, consequently, they keep up their trying first one worthless cure and then another, enriching the quack but getting little or no real benefit in return for their effort and money.

I feel safe in the statement that the patient practically always seeks aid from his family

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physician first, and it is only when he fails to get relief that he goes to the quack. The quack, furthermore, sees very few acute cases. It is always the old chronic whom we have failed to relieve that enriches his coffers. To "cuss" him out for his ability to attract and get rich out of our failures will never get us anywhere in the solution of this problem. To fight him openly in the courts is often one of his best advertisements. If we ever hope to stop the iniquitous and detestable inroads these charlatans make on legitimate medicine, it must be done by a better and more effectual program in the treatment of our chronic patients.

Many of our leading men are cognizant of this fact, and are urging that we take every possible step to remedy the situation. The following comment in a recent issue of the *Journal of the American Medical Association* shows the need along this line and the trend of our foremost thinkers in working out its solution:

"In the last quarter of a century, the span of life has been lengthened and certain infectious diseases have been eliminated from vast areas. The greatest obstacle now to further progress comprises the group of afflictions generally referred to as chronic disease. Seventy years ago such conditions caused one-fifteenth of the total number of deaths; today they are responsible for one-half of all deaths. Opportunity to observe and study the cause of chronic ailments and to render a much needed service is available in the homes of the incurable and almshouses throughout the country. In a recent study of the leading institutions of this nature, one observer found that the scientific study of disease in such homes is almost ignored. Inmates are looked on in general as beyond rehabilitation. The 1910 census showed that nearly two-thirds of 84,000 paupers in almshouses suffered from physical or mental defects and that the death rate among them was 207.7 per thousand enumerated. This condition apparently did not improve in the next ten years. In New York, in 1921, 67 per cent of nearly 9,000 inmates of almshouses were sick or infirm. The few large institutions that have attempted to rehabilitate their inmates have been handicapped by inadequate appropriations. Some inmates need only custodial care; some need only nursing care; others require the facilities of a well-organized hospital. The

individual patient changes from one class to another on account of acute attacks of disease, exacerbations of chronic ailments, or accidents. Obviously, therefore, it is poor management to maintain an institution on the basis that every inmate needs at all times only one kind of care. Boas asserts that buildings designed at minimal expense for those who need a home should be provided, but the main building should be reserved for those who need hospital care and for whom there is hope of rehabilitation. County almshouses cannot be organized in this manner. The counties should pay a proportionate share in the maintenance by the state of large central institutions, which would give better service. The small homes for the incurable and the small almshouse have no place for an independent existence without hospital facilities."

But as important as it is to have proper institutions in which to care for this class of patients, it is far more important that we adopt a more practicable and effectual method of treatment than we have been employing in the past. We must learn to recognize the difference between symptoms and actual disease entities. The secondary condition may and often does need treatment, but little permanent improvement may be expected unless we locate and correct the primary cause of the trouble. It will do little permanent good to treat a digestive or nervous disorder until we correct the tonsil or dental condition causing it. Little real benefit may be expected from the type of pelvic surgery that leaves the original cause of the trouble in the shape of an old infected cervix to continuously spread disease and inflammation to the adjacent organs and throughout the system. The patient with an ailing eye will continue to harass us or our fellow practitioner with urgent requests for relief and restoration of better vision unless we locate and treat properly the old painlessly infected sinus that is causing it. Our neurasthenic or mentally deranged patient may be doomed to a life of bromides, luminal, etc., or to permanent institutional care if we fail to discover and remove the old impacted teeth causing the trouble. It will often be of little or no permanent benefit to treat your cases of constipation along old lines alone and leave a tight sphincter or hemorrhoids or both as an obstruction to the easy emptying of the bowel.

The scientific study of the motor phenomena of the stomach, the chemical study of its contents or of its digestive capabilities, a cardiographic study of the heart or an elaborate functional test of the kidneys are all most interesting and instructive and more of this type of work should be encouraged. However, it would seem that there is sometimes an inclination after working out elaborate ultra-scientific diagnostic findings of symptoms in a given case to completely ignore the focus of infection that lies back of the origin of this physical disturbance, and let the patient slip by without getting any real and lasting benefit from the exhaustive study that has been made of his case.

We must learn humility of thought to the extent that, just as the expert mechanic will tell you that the smallest piece of trash in the needle valve of the carburetor may put your car completely out of commission, just so may a small focus of disease in the human system give rise to such an annoying chain of symptoms that such a person is rendered unfit for a happy and useful existence. In fact, I believe, that a large per cent of our unrelieved chronic diseases are caused by such trivial things that in themselves seem innocent enough and that are being overlooked by the best men in our profession.

With this idea in view, I have made a very careful and intensive study of a large number of chronic cases and have been more than surprised at the way, for instance, that an old long standing stomach disorder will clear up when the causative infection was located and corrected. In fact, so often and so readily do the most distressing digestive troubles improve from this line of treatment, even after symptoms had persisted for many years, that one is impressed with the conclusion that the stomach, contrary to the usual idea that it is easy to go bad, is in itself a most resistive organ against disease.

These deductions also hold true in the case of children. It is a most common occurrence to see a child who has been subject to repeated and persistent stomach upsets that have been diagnosed everything coming under the heading of stomach diseases, completely clear up after the removal of some bad teeth or tonsils and adenoids, or even small fragments of the

latter which had been left over from some former operation.

Some of the best men in our nervous and mental institutions, both private and state, are too prone to class many of these diseases as functional, and relegate the case to a life of hopeless mental imbalance, when a more careful study from the standpoint of some hidden chronic infection would help restore the patient to a self-sustaining and useful life.

The field for the man interested in a better treatment for those suffering with some form of chronic ailment is unlimited. In fact, the world is full of this class of patients.

The challenge for a more beneficial handling of these cases is big enough and difficult enough to engage the best thought of the foremost minds of our profession.

The change in our attitude towards and our treatment of the chronic patient is destined to be revolutionary in its extent during the next few years, and he who fails to hear the call of a better day for these unfortunates must indeed be slow to discard that which is useless in the old method of drug treatment alone and to adopt that which is best in the newer method of looking for and correcting the underlying cause.

A GRAPHIC PRESENTATION OF NUTRITIONAL DISTURBANCES OF INFANCY.*

By SAMUEL NEWMAN, M. D., Danville, Va.

The great mortality and morbidity during infancy are due mainly to nutritional and digestive disturbances. Of every hundred deaths during the first year of life, three-fourths are due directly or indirectly to disturbances centering about the digestive system¹. The heaviest mortality is among the artificially fed infants.

No chapter in pediatrics is as important and at the same time so difficult as that dealing with nutritional disturbances of infancy. The various and conflicting schools of pediatrics and the lack of a uniform terminology prove a baffling problem to the pediatrician.

In the main there are two systems of classification of nutritional disturbances of the bottle-fed infants. The first system classifies nutritional disturbances on the basis of etiology; the second, on the basis of the

*Read before the fifty-sixth annual meeting of the Medical Society of Virginia, at Richmond, October 13-16, 1925.

analysis of the clinical picture, and is essentially a clinical classification.

The etiological classification presents many difficulties. In the first place, it is seldom possible from a study of the case to reason back to the cause of the disturbance. In a majority of cases it takes a combination of causes to produce a clinical entity or complex. In the second place, a definite etiologic factor will cause a nutritional disturbance of varying degrees and stages, each of which will require a different treatment. Hence, treatment is not based on etiology mainly but on the analysis of the clinical condition at hand.

The clinical system of classification of nutritional disturbances of infancy is based on the analysis of the clinical features of the case and it is at once valuable to the practitioner in suggesting the therapeutic procedure. However, the chief difficulty does not lie in the recognition of the various clinical conditions or entities that go to make up the difficult chapter of nutritional disturbances, but in the grasping of their interrelations and transitions from one clinical phase into another. This, as it actually occurs in practice, is through a tortuous course, and is bewildering even to the expert.

In order to clarify this subject, I wish to present briefly the classification of nutritional disturbances by Goepert and Langstein², and show graphically the interrelation of the various clinical pictures as we meet them in practice.

Nutritional disturbances in the artificially fed infant present themselves in acute, chronic and mixed forms. In acute forms the picture is dominated by manifestations on the part of the digestive system with more or less participation of the general well-being of the organism. Diarrhea, with or without vomiting, gives the condition a characteristic picture. This we shall designate (for want of a better term) dyspepsia A (Stage II).

The chronic nutritional disturbances are met with in two forms. One form is a condition of non-thriving without any digestive disturbances. Infants in such a condition will appear pale, under-sized and with flabby musculature. The essential feature of this form of disturbance is that there is no tissue waste or loss of weight, but a failure to acquire new tissue at a rate considered normal. This clinical condi-

tion is designated hypotrophy, or disturbance of nutritional balance (Stage III).

Another form of chronic nutritional disturbance is a loss of weight of varying degree with the participation of the whole system. In this condition we find changes in the water content of the skin, its tone and color are changed and the temperature regulatory mechanism is impaired, the tendency being to subnormal temperature. The essential feature of this condition, according to Marriot, is an atrophy of the blood. This condition is designated as atrophy, marasmus, athrepsia, pedatrophy, decomposition (Stage V).

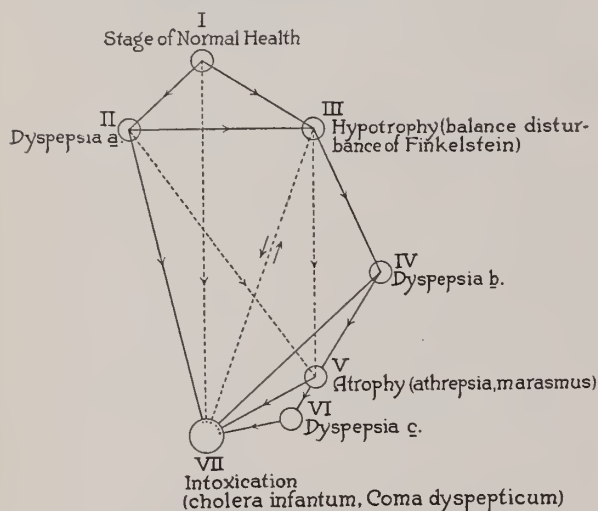
A diarrhea or gastro-intestinal disturbance may befall a child that is in perfect condition of nutrition and development (dyspepsia *a*); one that is in a condition of hypotrophy (dyspepsia *b*); and, finally, one that is in a condition of atrophy (dyspepsia *c*). These three varieties of gastro-intestinal disturbances are to be understood as distinct clinical entities and are to be treated differently. The kind of dyspeptic disturbance we are dealing with is easily divined from the history and examination of the case.

The important clinical picture described in the older literature as *cholera infantum*, but now designated as *acute alimentary intoxication*, is a condition easily brought about through dyspeptic disturbances in atrophic children. The essential features of this condition are a disturbance of water metabolism, rapid loss of weight, heart weakness, and clouded sensorium. The older designation, *cholera infantum*, is inadequate for the reason that not the gastro-intestinal manifestations, such as diarrhea and vomiting, are the main features of the condition, but a vital metabolic disturbance of which diarrhea and vomiting are only some of its manifestations.

We have thus far outlined the various clinical conditions that come under the heading of nutritional disturbances of infancy (bottled). However, the nutritional disturbances are to be conceived of as a unity, and the transition from one condition into another should be clearly visualized. The overwhelming majority of disturbances centering about the gastro-intestinal tract of the infant are not localized conditions but merely manifestations of nutritional disturbances which must be properly designated and viewed in the larger perspective

of nutrition and metabolism. A diagnosis of liver trouble, diarrhea, gastritis, colitis, or even dysentery (unless it be identified bacteriologically) is not a tenable diagnosis in infancy, unless the localized etiologic or pathologic process can be convincingly proved.

This shifting clinical picture of nutritional disturbances of infancy can best be understood as clinical entities, and at the same time as stages of a larger whole or unity, by means of the accompanying diagram³.



An infant in normal nutritional condition or balance we may conceive of as being in Stage I, or stage of normal health. A normal infant, through a variety of causes, may become acutely ill with gastro-intestinal symptoms, such as vomiting, diarrhea and fever (Stage II, dyspepsia *a*). The same or another etiologic cause may lead to Stage III, hypotrophy. A condition of hypotrophy may also develop in a round-about way by passing through an acute dyspepsia or an intoxication (Stage VII) after either of these conditions have been cured.

The hypotrophic child, because of a continuation of the cause or causes which brought on this condition, or because of additional noxa, may also suffer from a dyspeptic disturbance (Stage IV, dyspepsia *b*). A continuation of the harmful influence or irrational treatment of dyspepsia *b* will usher in the condition of atrophy (Stage V). However, a condition of atrophy (marasmus) may come about without any intervention of dyspeptic disturbances. A child will land into atrophy straight from a condition of hypotrophy. Pylorospasm or

pyloric stenosis, for instance, may result in marasmus without any accompanying gastro-intestinal disturbances, the chronic condition of inanition being sufficient to result in atrophy.

In the stage of atrophy the child is very liable to dyspeptic disturbances due to his very low resistance. Such an upset (Stage VI, dyspepsia *c*) in a marantic child is of grave consequence, as it may easily push it down to a condition of intoxication (Stage VII).

Stage VII, intoxication, results most easily from dyspeptic disturbances in atrophic children. In the diagram this fact is represented by a short line. But a condition of intoxication may come about in other ways. The commonest ways will be through the dyspepsias, *a*, *b*, and *c*, and atrophy. More rarely a case of intoxication will befall a child in a condition of hypotrophy or even in normal health. During the hot summer spell we may see cases of intoxication even among healthy breast-fed infants. The relative rarity of such possibilities is graphically represented by the dotted lines and their relative length.

In this discussion we limited ourselves to a definition and designation of the various clinical entities that fall into the chapter of nutritional disturbances of infancy in the bottle fed, and to a presentation of their relationships and transitions. Etiology and treatment of these conditions have not been touched upon.

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AN EXCUSE FOR ONLY ONE ATTENDANCE UPON THE MEDICAL SOCIETY OF VIRGINIA IN TWENTY-SEVEN YEARS — GOOD AND BAD YEARS. WILL AN ATHEROMATOUS HEART IN THE FINAL STAGES OF DECOMPENSATION COME BACK? HOW MAY WE PERSUADE IT?*

By A. F. WOOD, M. D., Parksley, Va.

Thinking that I held a record of the poorest attendance in twenty-seven years of membership in this Society—(a record in which I take no pride) and after consuming thirteen years

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(since the meeting I did attend in Lynchburg) in bolstering up my courage to the point where, in September, I decided I ought to attend another meeting before I came into Dr. Osler's age limit, it occurred to me that my plain duty was to face the crowd and give some reason for such a flagrant violation of the ethics of a Virginia physician, viz., to get in every crowd he has a chance to join and talk his head off.

So, having gotten Mrs. Wood's consent to come, under her chaperonage, I sent the title of my talk or paper to our estimable secretary, Miss Edwards. She wrote me that the title was quite long and that members were only allowed twenty minutes to deliver themselves of all they knew on any or all subjects. That information struck me right at home, so I answered, "All right, I can tell all I know about medicine and all foreign subjects in less than five minutes, and the title might be longer than the text." My main excuse is the kaleidoscopic changes in progress of modern therapy.

Many, many times I have prepared papers, several weeks previous to meetings of Medical Society of Virginia, on subjects I imagined I knew something about, only to pick up a current journal and to be confronted by a learned discourse on the same subject by a more imaginative physician, which forced upon me the conclusion that I knew less about that particular branch of medicine than any other in the curriculum. There would not be time for writing on another subject; therefore, another meeting would be missed. That, ladies and gentlemen, constitutes my most salient "excuse," as Miss Edwards would put it, although I used the word "reason."

A general practitioner is kept so active in his endeavor to manage the ills of the entire body that he has scant time to concentrate on isolated spots or organs, as has the specialist. The specialist concentrates his fire on a particular and limited sector; the practitioner must cover the entire field of operations.

However, all through my twenty-seven years of variegated practice, I have been scourged with an unending stream of so-called Bright's disease in elderly people; you know the symptoms—kidneys, liver and heart. These cases come in different stages of albumen, casts, liver hypertrophy, and heart dilatation or hypertrophy, and have all been drilled in a meat-free diet, and 95 per cent of them, on such diet,

and in spite of medication, gone to the same end—uremia, heart failure, dropsy (drown in their own fluids). In the last twelve years I have been impressed by the great number of such cases on the Eastern Shore of Virginia, where many residents of communities close to water front live on oysters and duck in winter, and crabs, clams, and fish in summer. From childhood they get a too small per cent of other meats, their diet, besides seafood, consisting of vegetables, such as are raised in their gardens, mainly spuds. So I was forced to theorize to myself, and I have called this condition "red meat" or "proteid starvation." The lack of this protied disturbed metabolism and brought about these various symptoms, which progress toward voluntary and involuntary muscular weakness and, finally, relaxation of all vital muscular organs. Acting on this theory, I have fed these cases fresh red meat, contrary to early teaching, and have seen albumen clear up, casts disappear, dropsical effusion absorb, digestive organs go to work normally, and heart murmurs cease. In a word, "back to the constitution" in diet benefits many, and not a few become normal. But, bear in mind, many have developed complications during this muscular destruction, and these cases try our patience and ingenuity.

This brings me to the second part of my title, "Will an Atheromatous Heart in Final Stages of Decompensation Come Back? How May We Persuade It?"

We have all sat by the bedside of some old friend who has gone the inevitable route. Past sixty years, he or she has experienced all the symptoms mentioned before, with hardening of blood vessels, high blood pressure and a legion of other catabolic changes. Then follows a stage of stertorous coma, general relaxation with dropsical effusion, the radial pulse is gone, the vessels of the neck are dilated and engorged, and the patient becomes barrel chested and emphysematous. Our stethoscope fails to recognize the old familiar lubb-dupp in the confused medley of abnormal sounds which constitute the heart's last weakened efforts. Will such a heart come back? We have used various stimulants and tonics, hypodermically and intravenously, without staying the catastrophe; and now, to what plan may we turn with hope?

In my hands, strophanthin, injected into the muscles of the ^{1st} ventricle, will cause instant

contraction of the entire heart, and, remarkable to state, in less than a minute, the heart valves work smoothly and without a murmur. But, the drug must be injected into the muscle, and not the cavity of the ventricle, for we have already, early in the dilatation, failed through the blood stream. This injection is a trifle difficult, as the heart walls are extremely thin. Briefly, the technique in three cases was as follows: Use a sterilized syringe, with a $1\frac{1}{4}$ inch needle of small caliber loaded with a solution of strophanthin 1/100 grain from sterile ampoule; a spot over the fourth interspace having been painted with acriflavin, direct the needle obliquely from left to right, aiming to go the longest distance through the heart wall; the point of needle comes out into the cavity of ventricle, indicated by a distinct tremor felt as the barrel lay on inside of the index finger. Do not inject now, but slowly withdraw your needle, and, as you feel a tug at point of needle, indicating the point is within the muscular wall, begin slowly to inject as you gradually withdraw. The muscle may not get the entire dose, but it gets enough, and before you lay the syringe down and get in place your stethoscope (which hangs from your ears), your old friend "Lubb Dupp," has returned.

TUBERCULOSIS OF THE WEIGHT-BEARING JOINTS.*

By R. M. HOOVER, M. D., Roanoke, Va.

The weight-bearing joints are naturally grouped together, because their symptoms and signs are in general very similar, the prognosis is the same, and the principles of treatment are identical.

Before treatment is instituted, a diagnosis is necessary. It has always been difficult to make a definite diagnosis early in the course of the disease, before marked structural changes have occurred in the joint with their increased probability of permanent deformity. Yet in this, more than almost any other pathological condition, an early diagnosis is desirable because of the good prognosis in early cases properly treated, and the danger to life or normal activity in neglected cases.

The ordinarily accepted symptoms and signs of joint tuberculosis are pain, swelling, local heat, atrophy of muscles and bone, muscle spasm, night cries, and afternoon elevation of

temperature. These, along with the blood picture, a positive Von Pirquet or intradermal test in children under twelve years of age, and the X-ray picture, have been considered sufficient to warrant a diagnosis of tuberculosis. However, an absolute diagnosis of tuberculosis on these alone is as unjustifiable as a diagnosis of diphtheria without a culture, or typhoid without a Widal or blood culture.

Pain, swelling, heat, atrophy, muscle spasm and loss of function may be present with any joint infection. Temperature and blood picture are inconstant and will not differentiate from other infections. The tuberculin skin tests are of little value unless negative, and, if positive, are useless except in children under twelve. X-ray shows no change early in the disease, the first thing being bone atrophy, followed by hazing, fuzziness of the cartilage outline, and later destruction of cartilage and bone. However, all of these are late in the course of the disease.

Among the pathological processes which affect bones and joints, tuberculosis is, according to Jones and Lovett, the most purely destructive, almost never showing any tendency to bone proliferation. Its reaction of repair is fibrous tissue formation, which eliminates the useful motion of a joint, yet does not give the absolute immobility necessary for the permanent arrest of the disease process. This is seen clearly in a majority of cases of some standing, as they have recurring flare-ups, and are only well when there has been such complete destruction of cartilage as to allow bony ankylosis, usually in bad position. Unfortunately, this process usually takes from six months to many years, and many cases die in the meantime of pulmonary or miliary tuberculosis, tuberculous meningitis, or amyloid disease from long continued suppuration.

It is very essential that an early diagnosis be made, for in tuberculosis the joint must be immobilized; in other conditions, mobilization is essential to maintain joint function.

We have seen that in tuberculosis the disease is only finally arrested by bony ankylosis, so an early ankylosis in good position is the thing to be desired, while in other conditions free motion is the object of treatment. A pyogenic infection should be drained at once before cartilage is destroyed, followed by active and passive motion in order to restore

*Read before the Southwestern Virginia Medical Society, at Mountain Lake, Va., August 27-28, 1925.

good function. A tuberculous joint should not be drained unless there is mixed infection, and cold abscesses should be treated by rest, or, if they become too large, by aspiration.

A number of conditions so closely simulate this that they are indistinguishable unless one of the following has been done:

1. Demonstration of the organism in material from abscess or abscess-wall.

2. Microscopical examination of tissue removed at operation.

3. Demonstration of the organism by animal inoculation of material removed from the affected joint. A positive diagnosis of tuberculosis can not be made without one of these.

Some years ago it was considered very dangerous to explore a joint, but with present technique and methods of approach, a joint may be explored with just as much propriety as the abdomen, and the leading men in the field, as Dr. Nathaniel Allisson and Dr. Russell Hibbs are advocating exploration in any strongly suggestive case, for only by such means can an absolute diagnosis be made, and treatment be directed intelligently.

The treatment of this condition follows logically the picture of repair. Thirty years ago very radical operations were done with the idea of removing all diseased tissue, but healthy bone was infected in the process, and the results in most cases were poor, if not fatal.

Following this, operative treatment was abandoned, and braces and plaster used with about as poor results.

In recent years, operative procedures have been developed by which ankylosis can be produced in a minimum length of time with a minimum of operative risk. Since ankylosis is the only method of cure in this condition, why not obtain this in the shortest time, with the least risk, and get the patient back into normal active life as quickly as possible?

STATISTICAL STUDY OF DEATHS FOLLOWING PROSTATECTOMY.*

By R. M. LeCOMTE, M. D., F. A. C. S., Washington, D. C.
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With a view of ascertaining the relative frequency of the different factors which defeat the genito-urinary surgeon in his en-

deavors to bring his patient safely through prostatectomy, a search was made for reported cases in which sufficient information was set down to give the data desired. Since single cases are ordinarily reported only because of the rarity of some condition observed and a small number of cases would not be comprehensive enough to show the true incidence of each condition that had occurred, it was thought that only series of at least twenty-five fatalities occurring in the practice of one surgeon should be included in the study. The search brought to light only five articles† adequate for the purpose outlined.

The material includes reports from 1906 to date, practically two decades and a period during which practice in treating prostatism has changed markedly. With the exception of the series reported by Deaver, in which the mode of operation was not stated for the individual case, the reports included only deaths following the supra-pubic operation. So far as could be determined, cases of prostatic carcinoma were not included in the reports.

A compilation of the one hundred and ninety-six fatalities thus reported and a grouping of them according to the relation that the cause given in each bore to the disease and the operation, gave four main headings:

1. A miscellaneous group, comprising twenty-five cases, or 12.75 per cent, in which the cause given bore no definite relation to either disease or operation or was described by so indefinite a term as not to admit of accurate classification. They have been included in the study only so that other causes might not gain undue importance because of their omission.

2. A second group, in which the cause might easily have caused death had no operation been done to relieve the urinary obstruction. This group numbers thirty-one cases, 15.81 per cent, and cannot be charged to the operation. Of this number, eight cases, 4.08 per cent, were due to generalized infection, sepsis or pyemia, and the remainder, twenty-three cases, 11.73 per cent, to infection of some part of the urinary tract. Those set down as due to pyelonephritis, eight cases, 4.08 per cent, have also

†Tenny and Chase: *Jour. A. M. A.*, 1906, 46 p., 1429.

Freyer: *Brit. Med. Jour.*, 1912, (2) Oct. 5, 868.

Deaver: *Arch. of Surg.*, 1921, II, 2 (Mar.), 231.

Marion: *Encyc. Française d'Urol.*, Paris, 1923, Vol. VI, 242.

MacDonald: Cited by Marion, 1. c.

*Read before the Medical Society of the District of Columbia, Washington, October 14, 1925.

been included as though due to renal insufficiency, since persistent or severe kidney infections commonly produce death in that way. Nine cases, 4.59 per cent, in which the location of the urinary infection was not stated, have also been ascribed to renal insufficiency since the reporter, Marion, included the six cases of perivesical infection in his series, and it is reasonable to suppose that, had the cases in question been bladder infections, he would have specified.

3. A third group was due to incidents or accidents occurring during or resulting from the operation. These include thirty-four deaths, or 17.35 per cent. In this group, shock and hemorrhage hold the greatest number—twenty-five cases, or 12.76 per cent. Hemorrhage alone is given as the cause in only a small number—three cases, or 1.53 per cent. Study of the original reports leads to the belief that the reporters were either doubtful as to the extent to which the shock encountered might have been due to the bleeding that had taken place or had disregarded the hemorrhage factor altogether. Tenny and Chase group them together; Marion reports only hemorrhage, while Freyer, MacDonald, and Deaver report shock deaths but none from hemorrhage. It is believed that the figure given for hemorrhage, 1.53 per cent, is much below the actual incidence and that even slight or moderate bleeding may have considerable bearing in producing shock or even more remote complications, such as kidney insufficiency or circulatory embarrassment.

4. The fourth group includes deaths that were set down as due to disease of the kidneys, heart or lungs. While some of these deaths undoubtedly came from deficiencies due to the advanced age at which prostatism occurs, some to the secondary effects of urinary obstruction, some to the operation done, and others to a combination of these, the information at hand is not sufficient to make a satisfactory separation on etiological grounds and they have been grouped according to the organ affected. This group is the largest of the four and comprises one hundred and twenty-three cases, or 62.73 per cent.

In dealing with prostatism, prostatectomy is seldom forced upon us: a very ill patient, even with complete retention, can generally be temporarily relieved by catheterization and, if

this is impossible or impracticable, a cystotomy may be done. The patient is usually improved by either of these procedures, but if he does not regain sufficient strength to undergo prostatectomy, life with a suprapubic drain and bag is not unsupportable. Failure to improve after drainage has been established is generally due to irremediable damage of the vital organs.

Since the greatest proportion of prostatectomy deaths come from definite disease of these vital organs, reduction in mortality rates will largely depend upon the accuracy with which their functional capacity can be established. But it is not sufficient to estimate the actual functional capacity; experiments have shown that three-fourths of the kidney substance of an animal may be removed without causing death; it has been estimated that life may be sustained with but one-fifth of the normal aeration area of the lungs functioning and it is a matter of common clinical experience that patients with severe and extensive lesions of the circulatory apparatus may live for a long time only to succumb to some slight strain which would not in the least affect a normal individual. For these reasons, in establishing a prognosis for prostatectomy, it is necessary that the reserve power be accurately estimated. Unfortunately, we have no method by which this can be done and the subject of the experiment survive so that we can only reach an approximate conclusion by analysis of data obtained before operation and a checking up of it with the post-operative result.

Renal insufficiency or uremia accounts for eighty cases, or 40.80 per cent of the whole. Anatomically the only constant feature of this condition is some form or other of destructive kidney lesion. Clinically it serves to account for various symptoms and signs from cramps in the calves of the legs and cold feet to anuria and sudden death; the constant clinical feature is a deficiency in the quantity or quality of the urine excreted. From the viewpoint of pathological physiology, the most constant finding is an increase in the various elements which go to make up the non-protein nitrogen of the blood; yet cases that are anatomically and clinically uremia occur without any change in these constituents, so that, while the cause evidently lies in a kidney lesion, the actual mechanism by which illness and death are

produced is still unknown. The present idea is that it is due to retention of a toxin which makes up a part of the undetermined nitrogen of the blood, but we have no more exact idea than this, as to what this toxin is, whether it is a normal product of metabolism which fails of excretion or whether it is an abnormal one generated quickly just before the development of grievous symptoms. Whatever it may be and whatever its origin the toxin is probably eliminated by the kidneys and, if we are to avoid operative deaths from uremia, the function of the kidney must be carefully estimated and due consideration be given to any deficiency that is found.

The function of the kidney is complex and, despite the hypotheses that have been formulated and the experimental work that has been done, the details are still largely a matter for conjecture. In brief, it subserves five major functions:

1. An important part in the maintainance of the fluid equilibrium of the body.

2. An important part in the maintainance of the salt concentration of the fluids of the body.

3. An important part in the removal of the acid waste products of metabolism, perhaps the most important part in the maintainance of the normal H-ion concentration of the blood.

4. The most important avenue for the removal of the waste products of protein metabolism.

5. The excretion of certain toxic and non-toxic substances when these occur in the blood at all or in excess of a certain amount.

If the fluid or salt equilibrium of the body tissues or fluids is changed, illness marked by the presence of subcutaneous edema quickly results.

Some degree of acidosis probably occurs in all severe kidney disease, but it may occur in the absence of any kidney lesion; and the measurable margins between the normal and absolutely fatal limits of it are too narrow and may be too quickly traversed for its measurement to be taken as a test of kidney function.

Estimation of kidney function by measuring the products normally excreted in the urine is not a satisfactory method because it can give only an idea of the material removed and leaves us in ignorance of the amounts retained.

Clinical study of the retention of the end products of nitrogenous metabolism has been practicable for only a short time and has been made possible by simplification of the technique of estimation by Myers, Marshall, Folin and others since 1910.

Without reviewing in detail the work that has been done, our present view is that the non-protein nitrogen of the blood comprises an excretory portion consisting of urea, uric acid, creatinin, creatine and ammonia, an intermediate portion made up of amino acids and an undetermined portion which is computed by subtraction.

Study of kidney disease on the basis of blood nitrogen retention indicates that there are two types of nephritis with such retention,—the nephritic, in which the retained urea is more than 50 per cent of the total non-protein nitrogen, and the toxic, which is well illustrated by the findings in eclampsia, in which the urea is less than one-half of the non-protein nitrogen content. Clinical experience indicates that for practical purposes the determination of the urea ratio is as satisfactory as the more laborious and detailed estimation of the other elements which make up the non-protein nitrogen and that, if the urea content is not markedly increased and represents more than one-half of the non-protein nitrogen, the toxic element is low enough to be considered normal.

Following the course of prostatism by blood nitrogen studies, it is learned that the nitrogen content is ordinarily high but that after the back pressure has been relieved and the diet and hygiene of the patient regulated, it sinks to a point the absolute level of which depends upon the amount of permanent damage that the kidneys have sustained.

Myers (*Jour. A. M. A.*, Oct., 1922, 79, 17, p. 1,386) states that with a blood urea nitrogen of below twenty milligrams per hundred cubic centimeters of blood, the renal factor may be disregarded. With retention up to twenty-five milligrams, operation should be undertaken with considerable caution, and if it is above that amount, only after considerable treatment.

Estimation of kidney function by the measurement of the various toxic and non-toxic substances excreted in the urine has attracted many workers; thus, the phloridzin test was used for a while and was followed by the use

of different dyes. The acme of this method has been reached in the phenolsulphonephthalein test, the use of which is almost universal, although methods of interpretation differ. Definite figures as to the lower limits at which operation is safe are seldom given; custom is to require an elimination of over 20 per cent for two hours following injection, either intravenous or intramuscular, of six milligrams of the drug. The amount excreted during the first hour should be greater than that returned during the second and the test should be repeated with approximately the same result several days apart.

Diseases of the lung, mainly pneumonia and broncho-pneumonia, account for the next highest number of organic deaths—twenty-three, or 11.72 per cent. Apart from a careful physical examination which ordinarily indicates only actual disease, nothing can be done to estimate what the performance of the lungs will be under the stress of anesthesia and operation. The effects of lung lesions are generally felt in other organs, principally the heart and the lesions encountered are mainly infectious, so that knowledge of their functional capacity is not so important as it is in other organs. Adequate nursing and operating-room care, with careful inhalation anesthesia for as brief a time as is practicable, will do much to minimize the lung hazard. Many of us believe that spinal and regional anesthesia lessen the lung hazard and are superior to inhalation anesthesia for other reasons.

Heart deaths account for twenty cases, or 10.20 per cent of the fatalities studied. In elderly men, the heart and kidneys are frequently damaged simultaneously, so that it is rather surprising that a larger number have not been set down as due to heart disease.

	NORMAL		NEPHRITIC		TOXEMIC	
	Mg. per 100 cc	Per cent	Mg. per 100 c.c.	Per cent	Mg. per 100 c.c.	Per cent
Urea -----	12	40	100	71.0	16.0	32
Uric Acid -----	3	10	15	10.8	8.3	16
Creatinin -----	1	3.3	13	9.4	1.8	4
Amino Acids -----	6	20	4	2.9	6.0	12
Rest Nitrogen -----	8	26.6	8	5.8	18.0	36
Non-protein Nitrogen -----	30	99.9	140	99.9	50.1	100
	Cases	Per cent			Cases	Per cent
I. Miscellaneous:						
Progressive cachexia -----	7	3.57	Collapse -----	1		.51
Progressive weakness -----	3	1.53	Acute pancreatitis -----	1		.51
Asthenia -----	3	1.53	Heat stroke -----	1		.51
Mania -----	2	1.02	Meningitis -----	1		.51
Cancer of liver -----	2	1.02	Gastroenteritis -----	1		.51
Cerebral hemorrhage -----	2	1.02				
Cachexia -----	1	.51	Total miscellaneous -----	25		12.75

	Cases	Per cent
II. Incident to Prostatism:		
Urinary infection:		
Location not stated -----	9	4.59
Pyelonephritis -----	8	4.08
Perivesical -----	6	3.06
Total urinary infection----	23	11.73
Sepsis and pyemia -----	8	4.08
Total incident to prostatism	31	15.81
III. Operative Incidents or Accidents:		
Shock -----	14	7.14
Shock and hemorrhage -----	8	4.08
Hemorrhage -----	3	1.53
Total shock & hemorrhage----	25	12.76
Embolism -----	5	2.55
Peritonitis -----	3	1.53
Anesthesia -----	1	.51
Total operative -----	34	17.35
IV. Organic Diseases:		
Kidney. Uremia, anuria or renal insufficiency -----	63	32.13
Pyelonephritis -----	17	8.67
Total kidney -----	80	40.80
Lung. Bronchitis, pneumonia, broncho-pneumonia or not stated -----	23	11.73
Heart. Heart disease, cardiac lesion, myocarditis or not stated -----	20	10.20
Total organic -----	123	62.73
Washington Medical Building, 1801 Eye Street, Northwest.		

PRESENT STATUS OF ANTILUETIC TREATMENT.*

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Ehrlich's chemoceptor and side-chain theory still holds good in the determination of the therapeutic applicability of drugs. In other words, the ratio between the parasitotropy, and organotropy proportion, determines the safety index of drugs. So it is important to bear this in mind in the selection of arsenicals, and to have a fixed mental attitude as to the object sought, together with a definite knowledge of the relative efficacy of the different forms.

It is possible to discuss but briefly the antiluetic drugs now available. To preface these remarks, it should be stated that at present no single drug is at our disposal that will dispense with the others. Intramuscular injection of mercury finds preference in the hands of the largest dispensers of this drug. Physiologically, it seems preferable to use the soluble form of mercury, prepared in a suitable

manner to eliminate pain to the greatest degree. The salicylates and benzoates find application in the hands of those who prefer the insoluble salts of mercury.

At the present time bismuth is receiving considerable attention among syphilologists and many very satisfactory reports have appeared, darkened by the usual bismuth forms of acute intoxication, such as convulsions, dyspnea, lassitude, albuminuria, and ulcerative stomatitis.

Bismuth preparations may probably find a place in antiluetic therapy, replacing mercury in some instances where the patient has shown a drug fastness or possibly an intolerance to mercury medication. Bismuth has the advantage of possessing both acid and basic properties, thereby adapting it to cases where there is need for an amphoteric condition.

There are three distinct types of bismuth compounds available. Bismuth quinine iodide, bismuth oxybenzoate, and the alkali salts of tartrobismuthate comprise the group now being utilized.

Bismuth is entirely too toxic for intravenous use, and finds application only in intramuscular therapy. Oily suspensions of the soluble and the insoluble tartrobismuthates have been used, but in most instances they have been accompanied by considerable pain.

Bismuth alone, like mercury, shows practically no trypanocidal activity in sublethal doses, as pointed out by Myers and Corbitt (1923).

In the fields of arsenicals a much greater variety of research has been carried out. Ehrlich's "606," salvarsan, or, in official terms, arsphenamine, without doubt continues to be the most potent drug in the series. To this group has been added a variety of neoarsphenamines differing from the original in physical, chemical and therapeutic characteristics.

If only one drug were available, I believe that I would select salvarsan, or silver salvarsan, as the most satisfactory from the point of view of clearing up lesions, causing the disappearance of organisms and giving an ultimate serological result that would be satisfactory to the clinician as well as to the patient. Of all the drugs available, salvarsan and silver salvarsan are the most potent. This is proved by the fact that these two drugs show the most satisfactory ratio from the point

*Read before the Ex-Internes Association of St. Elizabeth's Hospital.

of view of the trypanosome test. This is a fairly good means of evaluating these drugs in a comparative manner. I am making this statement notwithstanding some of the commercialized advertising literature that is available, but I defy any academic investigator to confirm the alleged potency of neoarsphenamine when it is tried out according to the methods employed by the U. S. Public Health Service. From a toxicological point of view, salvarsan will pass a test on white rats at about 200 mg. per kilo. The present clinical application is about 400 mg. per 60 kilo patient, or about 6 mg. per kilo. Therefore, you see that the safety margin is the ratio 6:200 or approximately 1:30.

In the case of salvarsan or arsphenamine, careful technique in the preparation of the solution must be carried out, otherwise reactions will result. There are three prime factors that must be considered in intravenous injection:

1. Concentration of the solution.
2. Alkalinity of the solution.
3. The rate of injection.

Salvarsan does not act quite as quickly as silver salvarsan in clearing up lesions, but it produces a more uniform action, together with an exceptional serological effect.

If at the present time we could depend upon the doctor to give the proper amount of time and consideration to the patient, the use of salvarsan would undoubtedly supersede the use of all other drugs, but unfortunately the doctor of the present day is looking for a "short method" of treating the patient, giving no consideration to the physiological action and the future results that should be expected in the treatment of syphilis. You will find many instances in which general practitioners are employing intramuscular arsenical treatment because they find that it is an easy way to carry out the task which really should be given more consideration.

You are well aware that arsenic acts particularly upon the organisms which are in the blood vessels and, therefore, in order to obtain an abortive treatment before a too great invasion of spirochetes has taken place, intravenous use of the drug is more desirable. In this way the organisms come directly in contact with the dynamic drug used for this purpose. From a serological point of view I

believe there is no drug superior to salvarsan, but, as I have pointed out earlier, it is necessary to administer the drug in the proper manner or difficulties will arise. You would be surprised to learn of the large number of men who forget to add alkali to the solution and give the patient an acid solution of salvarsan, in many instances resulting in death.

In discussing salvarsan, there is one other precaution that should be noted, namely, that during the early stages of the disease the drug should be administered frequently. Therefore, it is believed advisable to give a 0.4 gm. dose of salvarsan every other day for three to five injections, so that a maximum saturation of the tissues and the blood stream may be obtained. Too frequently the mistake is made of delaying the administration of the drug, and also many times the injections are given a week or two weeks apart. This is unsatisfactory in the primary and early secondary stages.

Silver salvarsan will undoubtedly produce the same effects as salvarsan, except that the serology, dose for dose, will not be quite as good. In other words, if you have a patient with mucous patches or early secondary lesions, such as cutaneous manifestations, you can remove these conditions more rapidly with silver salvarsan than with any other drug now available. From a social point of view this is extremely important because your patient can be rendered noninfective in a very short time. Actual dark field examinations have shown that the organisms disappear from the lesions quickly. Silver salvarsan is extremely valuable in cases where a drug fastness has developed. It has been shown by a fairly large group of individuals that in these old cases of drug fast syphilis, the employment of silver salvarsan has produced remarkable serological effects, changing positive serums to negative and keeping them so for periods of one and two years.

Silver salvarsan from a toxicological point of view is tolerated in doses of 200 to 250 mg. per kilo, and its trypanosome action is about twice that of salvarsan. Hence, the use of a smaller dosage is possible in the case of silver salvarsan.

The use of neosalvarsan is indicated in cases where the patient does not tolerate salvarsan well. We know that there are certain

individuals who show a marked tendency toward intoxication of the autonomic nervous system, and in that type of case it is suggested that neosalvarsan be tried. Furthermore, neosalvarsan possesses the advantage of convenience of administration in that product is already nearly neutral.

Neosalvarsan is well tolerated by most patients. It has a low toxicity in keeping with a high therapeutic activity. I think that it is fully established that neosalvarsan corresponds very well with the high ideals suggested by Paul Ehrlich in his original investigations in chemotherapy.

It is noted for the fact that it is almost entirely a mono-substituted product, thereby possessing a higher therapeutic activity than those products which are di-substituted or contain a large quantity of sulpharsphenamine as an impurity. Please understand that all neoarsphenamines are not the same in regard to toxicity or therapeutic activity and that there is a marked difference in the uniformity of the products.

Sulpharsphenamine is a modification of neosalvarsan which was tried out by Paul Ehrlich in 1912 and for some reason or other dropped by him at that time. It was later revived by the French under the name of sulfarsenol. More recently some American investigators have re-discovered these results and some agitation in its favor has been advanced. Sulpharsphenamine is two and one-half times less active than neosalvarsan. This statement is made irrespective of who may manufacture the sulpharsphenamine. It has the very unfavorable property of producing anemia and also a hemorrhagica purpura with a profuse bleeding from the mucous membrane surfaces. This bleeding cannot be stopped even by the use of thromboplastin.

As far as I am aware there is no real excuse for the use of sulpharsphenamine, and personally I regard the dangers as extremely great in its use. Its toxicity is about the same as that of neosalvarsan; its therapeutic activity, as I have stated above, is two and one-half times less than neosalvarsan. The responses of the Wassermann and the cutaneous lesions are not as good as those from arsphenamine.

Tryparsamide represents a pentavalent type of arsenical. It is excreted rapidly and almost entirely by the kidney. Ninety per cent of

it may be recovered from the urine unchanged during the first twenty-four hours. Its penetrability into the central nervous system is very slow. It has no spirocheticidal action. During the first few weeks after its application there is a remarkable improvement in the physical condition of the patients, but its later effects, according to the observations made by excellent investigators are not so good. It undoubtedly has a very definite use in the treatment of human trypanosomiasis. Its value in the treatment of neuro-syphilis cannot be definitely stated at the present time because careful observers realize that no statements can be made about drugs in the treatment of neuro-syphilis inside of five years of actual and continuous observation.

In your interpretation of the statements made above in regard to the various drugs, please do not overlook the fact that I am referring to uncomplicated conditions of syphilis. If we have aortic lues to deal with or a very sudden involvement of the central nervous system which has taken place only a few months after the primary infection, various modifications in the treatment must be made, and in all of the statements that I am making, I have certain mental reservations in regard to modifications in the manner in which these drugs may be used. I am just making this statement because there are always certain exceptions which come up in the treatment of syphilis in which the course of treatment is not one of routine. In fact, as you have undoubtedly long ago realized, the treatment of syphilis is one of individualization, and whenever a firm and fast rule is laid down, some of the patients suffer as a result of this scheme.

REFERENCE.

C. N. Meyers, Personal Communication.

ELECTRO-THERAPY AS AN EXACT SCIENCE.*

By C. E. BOWLES, M. D., Pulaski, Va.

The treatment of disease of the human body with electricity has for a long time absorbed the attention of some of our leading men, yet I, like most medical practitioners, have looked upon it with much skepticism and incredibility, often attributing the favorable results obtained to its psychological effect or the kind assistance of Nature. However, after considerable

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study and research, I became profoundly impressed with the sound scientific principles underlying electrical phenomena and especially those occurring as a result of its application to the body tissues. So firmly convinced did I become, that I had an electrical equipment installed in my office for experimental purposes; and it is now my desire to make known to you the methods used and the results obtained.

Like most of us with a new toy, I began trying it on everything, and was much discouraged to find that only occasionally did I apparently get any beneficial results, although I followed the technique of some very able men. I then set about to find the cause of my failures, which were more real than apparent, and much to my surprise, it became evident that I was working in the dark, so to speak. I was simply applying first one current and then another, and allowing them to flow from five to twenty minutes, according to directions, without having the faintest ideas as to what I expected it to do. I was using the old shot-gun prescription, and destroying that which I had hoped to cure. I then worked out a chart by which I could ascertain the current to be used for a definite result, and a formula to determine the actual measurements of the work being done, whether mechanical, thermal or chemical.

I found the high frequency machine to be fitted with a milliamperemeter, which simply informs us of the amount of current flowing, while ignoring two very valuable qualities of the current—the voltage and the resistance met in its passage through the tissues. No volt meter having been devised which is practical for high frequency, it was necessary for me to find this quality with a Wheatstone bridge, or a galvanic current with a volt- and ampere-meter in circuit. With either of these machines, I was able to find the body tissue resistance, but with the galvanic current it was necessary to apply Ohms law. According to this law, the current is directly proportional to the voltage, and inversely proportional to the resistance; therefore, by dividing the volt-meter reading by the ampere-meter reading, we arrive at the resistance. Then, by applying the high frequency current to the tissue of known resistance and multiplying the known resistance by the milliamperemeter reading of the high frequency current in fractions of the ampere, I was able to find the high frequency

voltage. This gave me accurate measurement of the current in amperes, of the pressure in voltage, and of the tissue resistance in Ohms.

My next problem was to determine what I desired the current to do, for electric energy is capable of being transformed in three ways: thermal, mechanical or chemical. Every current has these three qualities, but any one or two of them may be intensified at the expense of the other by following definite electro-magnetic laws. This is done in the various makes of electric machines, which deliver a definite current at the electrodes, but if any one of the conditions, voltage or resistance, be changed, as in applying the electrodes to the body, the amount of current flow is also changed and the effect of the current is modified as to its thermal, mechanical or chemical action. This feature probably accounts for much of the skepticism among physicians who are not well-grounded in the fundamental laws of physics.

There are two principal currents, alternating and direct, both of which are capable of many modifications, each accomplishing a definite result. The alternating current flows first one way and then reverses, with each make and break of the current, and, therefore, has practically no chemical effect of its own.

The high frequency is an alternating current, with from 60,000 oscillations per second up. The oscillations are so rapid that the muscle can not respond to each oscillation. It produces, therefore, a cellular bombardment, with mechanical work of a molecular nature, and also sets up heat waves. The D'Arsonval, or bipolar high frequency, is so arranged that these effects may be modified, the effect varying from intense molecular work to intense heat production. This current has practically no chemical effect of its own, although chemical reactions in the tissues probably occur as a result of the increased cellular temperature.

The Tesla is a high frequency current with a very high voltage and medium amperage, while the Oudin has an extremely high voltage and very low amperage. These two currents have very little heating effect, and their principal action is cellular bombardment and molecular mechanical work, although the reverse is true when the resistance is lowered and the voltage is greatly increased. The modified effect, due to changes in amperage, voltage and resistance, is true of both the alternating and direct currents. The direct, con-

tinuous, or galvanic current, is of low tension, and flows only in one direction, that is, the positive flows one way and the negative in the opposite direction. Therefore, the chemical constituents of the electrodes are driven into the tissues and produce anabolic or katabolic changes. This current has marked polarity and, if suddenly switched on or off, produces mechanical work in the form of muscular contractions.

J. J. Thompson, in his series of investigations of the cathode discharge, was able to make measurements of the ratio of the electric charge to the mass of particles of matter projected from the cathode, and to show that this electric charge was identical with the atomic electric charge carried by the hydrogen atom in the act of electrolysis, but that the mass of the cathode particles was only one two-thousands part of the mass of the hydrogen atom; and Prof. J. Larmon has shown the chemical atoms to be collections of positive and negative electrons. This has been sustained by many others, and the experiments of Madam Curie seem to settle the matter. She found the radium radiations to consist of three kinds—alpha, beta and gamma—the alpha rays being positive, the beta rays negative, and the gamma rays neither positive or negative and therefore neutral.

The force of these experiments has caused us to look upon electricity as a collective name for electrons in flow, which in turn must be considered as constituents of the chemical atoms. This point was given particular emphasis by me at the Roanoke meeting of the State Society. It brings us to a consciousness of the fact that, since atoms of matter are composed of congeries of electrons, the inertia of matter means the inertia of the electro-magnetic media, and the operation of the electric current consist of a diffusion or movement of these electrons through matter, and is controlled by the laws of diffusion, which are similar to those of diffusion of liquids and gasses. This is particularly true in using the direct current, but another important factor comes into prominence in using the alternating current, for, whenever the electrons or current are accelerated or retarded, that is, whenever the velocity of the electron is changed, electric or heat waves are produced. Heat being one of the forms of motion, as the heating effect

increases, the mechanical work decreases, but the more resistance that is met, the more is the mechanical work done relatively increased and the heat diminished. These facts are sustained by the experiments of Hermann, Raymond and Sanderson, and are applicable to the alternating current, of which there are many varieties, as the Tesla, Oudin, diathermy, sinusoidal, etc., each varying in its proportion of thermal, mechanical and chemical action. These same phenomena occur when the direct or galvanic current is used, but when used as a continuous current of medium voltage, its effect is almost purely chemical. This being the case, we find that tiny particles, or electrons, are projected from both electrodes and diffused into the tissues. From experiments, we know that this diffusion is not only intercellular but intracellular as well, so that chemicals are actually driven into the cell protoplasm, from which they may be recovered. Thus, the positive pole is used to introduce the metal ions and bases, while the negative pole introduces acid radicals and the halogens, in conformity to the magnetic law of attraction and repulsion. Wm. Morton, Benton Massie, Sir Lewis Jones and R. W. MacKenna have recorded some very interesting experiments along this line, the principal conclusion being that foreign ions are diffused into the body tissues in direct proportion to the milliamperage of the current and the time of its flow.

Massie, in *Practical Electro-Therapeutics and Diathermy*, gives a long list of the quantity of ions diffused by a given current and the relative velocity of the ions, of which I shall mention only two. He shows that the an-ion chlorine and cat-ion potassium both have a relative velocity of one, and flow into the tissues at the rate of practically 0.4 milligrams per coulomb of current. A coulomb is the measure of one ampere of current flowing for one second. The an-ion iodine has a velocity one-half faster than the cat-ion mercury, yet both flow into the tissues at the rate of practically 1.2 milligrams per coulomb of current. As a practical illustration, suppose we apply a continuous or galvanic current of $\frac{1}{2}$ ampere, with a pressure of 10 volts, and allow the current to flow for five minutes or 300 seconds, using a solution of potassium chloride as the electrodes. This would be 150 coulombs of current, which, multiplied by the

0.4 milligrams of potassium and chlorine, would show that 60 grams each had been injected into the tissues, while the same current would inject 180 grams each of iodine and mercury. Since these chemicals are diffused into the cell protoplasm, it is evident that the local effect would be more rapid and powerful and the systemic effect greatly prolonged. I have found this true in the application of cocaine and silver solutions to the nose and throat. Cocaine is diffused at the rate of 3. milligrams per coulomb of current and penetrates to a depth of 2 millimeters in five minutes, according to Leduc, while silver is injected at the rate of 1.1 milligrams per coulomb of current and penetrates to the same depth, in granulation tissue the penetration being much greater.

It may be of interest to side-track for a moment and apply this to our food values in calories. The human organism requires 2,281,400 calories of heat every twenty-four hours to maintain equilibrium. Of this, the intake consists, according to Kirke, of protein 400,000 calories, fats 906,900 calories, and carbohydrates 974,500. To furnish this electrically would require 814,385 calories of carbon, 481,798 calories of oxygen, 1,014,045 calories of hydrogen, 64,000 calories of nitrogen, and 4,000 calories of sulphur. This would require three daily applications, as follows: carbon 66 minutes, hydrogen 96 minutes, oxygen 62 minutes, etc. This does not concern us so much at this time, and is only mentioned as a possible therapeutic measure to be utilized in the future in maintaining body equilibrium where the normal digestive functions are in abeyance, but it does illustrate the mathematical exactness as applied to the direct current. The work of Prof. Baly, Heilbron, and Dr. Coward with the ultraviolet ray leads to the conclusion that the carbohydrates and protein, as well as the vitamins, are a result of the chlorophyll or carotin being built up into formaldehyde and later into these substances, through the chemical action of the ultraviolet ray, and, since the action of the ultraviolet ray and the electric current are identical from a chemical standpoint, it is evident that a consideration of the individual part to be treated is necessary before we can know the chemical reactions taking place in the tissues, for the chemical ions injected would react with the

chemicals of the tissue in accordance with definite electro-chemical laws. This particular phase exposes our ignorance of the chemical composition of man, but, from what we do know, fair calculations may be made and will at least be as accurate as the administration of drugs by mouth or hypodermically. We know that the carbohydrates, fats and their derivatives are composed of carbon, hydrogen and oxygen and that from 76 to 84 per cent of protein is carbon, hydrogen and oxygen, leaving from 16 to 24 per cent of the protein to be formed by nitrogen, sulphur, sodium, potassium, iron, chlorine, etc. We have reason, therefore, to believe that the C H O groups are responsible for most of the reactions, especially in the incipient stage. Of these, the elements of the lowest atomic weight, as hydrogen and oxygen, are probably most affected by the current. According to Thompson, the only difference between the elements is the number of atoms and electrons, and, as he has shown, the electron is only $1/2000$ part of the hydrogen atom, while the oxygen atom has been found to contain 32,000 electrons. From this it is evident that, if we can inject 30,000 additional electrons into the hydrogen atom, the result will be oxygen. We would then have an excess of oxygen in the tissue, which would react with hydrogen to form water, and with carbon to form carbonic acid. While this is a speculative reaction, yet we do know that sweating under the cathode is the rule, and that muscle tissue can be made to react and produce oxidation products, like carbonic acid, in an atmosphere containing no oxygen. Oxygen is not free in muscle tissue, but enters into a complex hypothetical compound called inogen. On the muscle contracting, this is broken up into carbonic acid, sacro-lactic acid, and a protein called myosin. It would seem that this knowledge makes our electrical calculations fairly accurate as to the chemical changes occurring in the tissues, while it also helps to explain its action on uric acid deposits. The formula of uric acid being $C_5 H_4 N_4 O_3$, on having one hydrogen atom converted into oxygen, and taking up one sodium atom, it becomes $C_5 H_3 Na N_4 O_3$ or acid sodium urate, in which form it is excreted in the urine. We would naturally expect different results from tissues of different chemical composition, many of

which will be known only after careful analysis.

THE ALTERNATING OR HIGH FREQUENCY CURRENT.

Time will not permit me to go into this type of current very fully, but the type of current desired can be readily selected from the electrical chart, and one example will demonstrate the accuracy with which it may be applied. This is a variable current, with from 60,000 oscillations per second up, and has practically no chemical effect of its own, although chemical tissue changes take place as a result of the increased cellular temperature. If we apply this current to a body of 800 ohms resistance and let $\frac{1}{2}$ ampere flow for five minutes or 300 seconds, with a pressure of 400 volts, our result will be quite different. There is no chemical effect, its action being of a molecular mechanical nature and heat production. In order to measure this, we multiply the voltage 400 by the $\frac{1}{2}$ ampere and this by the 300 seconds, which gives us 60,000 joules of molecular mechanical work done. Then to find the amount of heat produced in the tissues, we multiply this product by .24, as this is the heat equivalent of joules in calories, and we find that 14,400 calories of heat is produced in the tissues. As before stated, any change in one or two qualities of the current modifies its effect, and as the resistance decreases, the heat increases. Suppose, now, we apply the same current to the wrist of 100 ohms resistance; then, to find the amount of current flowing, with a given pressure of 400 volts, we divide the resistance into the voltage, which gives us 4 amperes. This would produce considerable destruction of the tissues. The resistance having been decreased, the mechanical work necessary to overcome this is decreased, while the heat is increased, so it becomes necessary for us to reduce the current. The amperage being directly proportional to the voltage and inversely proportional to the resistance, it is necessary either to reduce the voltage or increase the resistance by artificial means.

Most electric machines have a fixed voltage, and it is necessary, therefore, for us to add additional resistance in the form of wire coils, in order to have the same amperage. This is

readily accomplished with the Wheatstone bridge, which contains coils of definite resistance, usually of 10, 100 and 1,000 ohms resistance, etc. The results obtained in following this technic have been very gratifying to me, and it seems evident that its therapeutic value in the treatment of disease is not only practical, but accurate and scientific, when administered by those well-grounded in the fundamental sciences.

CASE REPORTS.

No. 1.—This consists of nine cases of acute dacryocystitis of from two days to three weeks' standing, about one-third of them having received previous treatment from their physicians. The symptoms varied from mild inflammation in the region of the tear sac to marked inflammatory involvement of the lids and conjunctiva. Treatment consisted of cellular bombardment and molecular massage with cathode rays, using the Soule eye vacuum electrode once daily for four days.

Results: In four cases the inflammatory symptoms were relieved in twenty-four hours, at which time there was every appearance of a normal condition. Three more treatments were given, and argyrol dropped into the eye passed readily into the inferior meatus. Four weeks later, one of these cases returned, and I found the tear sac greatly distended but not tender. Another treatment was given and patient returned the next day apparently normal. I gave him four more treatments. The other cases responded after four treatments.

No. 2. Mrs. —, age twenty-six, was a case of chronic lacunar tonsillitis, preceded by an acute attack of three weeks' duration. Referred to me by Dr. G., who had been treating her. The symptoms complained of by the patient were severe sore throat and great pain on swallowing. Her voice was husky and even speaking caused considerable pain. I found the tonsils full of ulcers and almost touching. There were about fifty sores on her face, arms and body, about the size of my little finger nail. She had lost considerable weight and was down and out. Treatment consisted of fulguration with a 10 m.m. spark every third day for three treatments, a copper electrode being used. A fourth treatment was

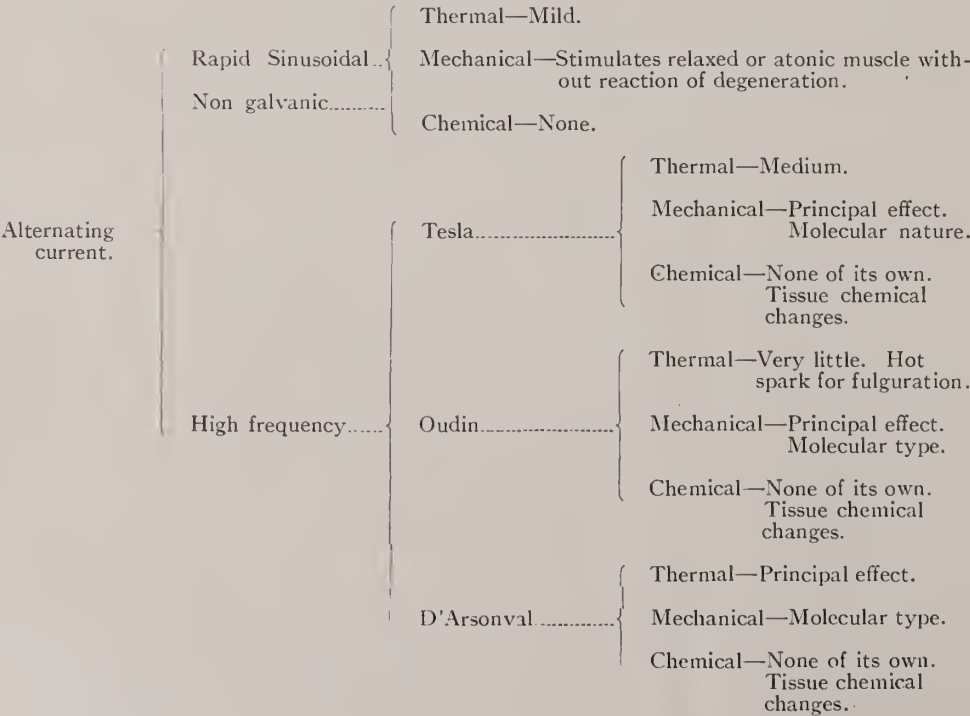
given after the lapse of one week. S. F. I. mixture was also administered three times daily.

Results: At the end of sixteen days, patient had gained fifteen pounds and said she never felt better. There had been no discomfort from treatments, although the tonsils were reduced to the size of a small lima bean. One almost disappeared. There was nothing abnormal left, except some adhesion to the pillows. Every sore had disappeared.

No. 3. Mr. U— was referred to me by Dr. W., a dentist, for antrum trouble. For two years he had been suffering with pain in the region of the left antrum. He had not been free from pain during this time, although at times it was no worse than a mild toothache. His teeth from the lateral incisor back had been removed but pain continued. I found no trouble with the antrum, transillumination showing clear. A diagnosis of trifacial neuralgia, involving the maxillary branch, was made. and later sustained by two physicians. I

advised alcohol injections or operation, but he was not inclined to follow this advice. I then suggested we might experiment with the current, to which he readily agreed. Molecular massage to the extent of 6,000 joules, together with 1,440 calories of heat was used, and eight treatments were given before absolute relief was obtained, although he reported considerable improvement after each treatment. Two months later he returned with pain in the lower jaw, after having had all lower teeth on that side removed without relief. I followed the same treatment I had formerly used, with the same results, but gave him twelve treatments this time. Since then he has taken several treatments at varying intervals, but has had no return of the trouble. Six months have elapsed since his last attack. I do not report this as a cure, for it may return, but simply give it to you for what it is worth. The fact that he obtained this amount of relief, after suffering continually for two years, certainly makes it worth while.

ELECTRICAL CHART



Direct current..	Thermal.....	{	Anode—Dry heat, sedative, vaso-constrictor, acid, coagulation.
		{	Cathode—Moist heat, liquefies, vaso-dilator, alkaline, increases blood supply.
	Make. Galvanic..... Break.	{	Anode—ACC obtained first and with less current—Reaction of degeneration.
		{	Cathode—CCC more prominent —Normal.
	Mechanical.....	{	Even. Make. Slow Sinusoidal—Stimulates atonic muscle with reaction of degeneration
		{	Break galvanic
	Make. Faradic..... Break.	{	Loss of response—Reaction of degeneration. Acts through nerve.
	Chemical.....	{	Anode—Drives in metal ions and bases.
		{	Cathode—Drives in acid ions and halogens.

ELECTRICAL RULES AND FORMULAE.

- 1st. Changing the resistance changes the voltage or amperage.
- 2nd. Amperage is directly proportional to the voltage and inversely proportional to the resistance (Ohm's law).
- 3rd. Mechanical work decreases as the heating effect increases.
- 4th. Voltage is usually a fixed quality.
- 5th. Body resistance is a fixed quality in each portion.
- 6th. Amperage is controlled by voltage and resistance.

FORMULA.

$$\text{Amperage} = \frac{\text{Volt}}{\text{Resistance}} \quad \text{Resistance} = \frac{\text{Volts}}{\text{Amperage}}$$

$$\text{Volts} = \text{Amperage} \times \text{Resistance}$$

TABLE.

- Amperage X Seconds = Coulombs — Amount of current.
- Amperage X Seconds X Volts = Joules — Amount of work.
- Amperage X Seconds X Volts X .24 = Calories — Amount of heat.

COMPLICATIONS INCIDENT TO THE OPERATIVE TREATMENT OF SIMPLE GOITER.

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The causes, the prevention and the treatment of the operative and postoperative accidents incident to the surgical treatment of simple goiter are well worthy of study.

Goiters associated with hyperthyroidism, primary or secondary, the various types of

suppurative and malignant neoplastic disease of the thyroid gland differ so much from simple goiter in etiology, pathology, clinical manifestations and therapeutic indications that they are outside of the scope of this paper. Aberrant goiters, cervical, lingual, endotracheal, etc., presenting additional and special dangers by virtue of their anatomical relationships, are likewise excluded.

A simple goiter may, at any time, become the seat of: (a) *hemorrhage*. This may lead to a sudden and marked increase in the volume of the goiter, to cyst-formation or to extravasation of blood into the paratracheal, mediastinal and other neighboring regions. Any of these conditions, singly or collectively, can determine tracheal compression, obstructive dyspnea^{1, 19} and necessitate immediate surgical relief. (b) *Abscess formation or diffuse suppuration*. This may occur in the course of, or after, any of the infectious diseases; it may occur in the absence of any other evident constitutional disturbance². The advent of infection increases the pressure symptoms. (c) *Malignant disease*³; *sarcomatous or carcinomatous*. Malignant disease occurs more frequently in goitrous than in normal thyroid glands^{3b}. (d) *Degenerative structural changes*, provocative of hyperthyroidism, hypothyroidism or dysthyroidism⁴. (e) *Inflammation*. The processes of degeneration present in goiters lower the local tissue resistance and predispose to inflammation. The swelling inherent to inflammatory, neoplastic and other degenerative processes of the thyroid gland

exerts nefarious pressure on the trachea and esophagus. The severity of this pressure is determined largely by the size and location of the swelling, tumor or cyst.

The operative removal of goiters eliminates these potential dangers and has further advantages. It can and should be strongly emphasized that intraglandular enucleation and subtotal thyroidectomy each gives extremely good immediate and remote functional results. The trachea is freed from all abnormal pressure. Many of the disturbances of phonation and respiration occurring immediately after operation are temporary, normal function being restored in from a few days to several weeks. Operations for simple goiter, for goiter unassociated with hyperthyroidism, are not attended with more than the usual risks incident to all major surgical operations. They give highly satisfactory cosmetic, functional and curative results, especially if surgical relief is sought before the patient has been subjected to repeated courses of iodine therapy and before the occurrence of degenerative visceral changes.

De Quervain⁵ reports 2,200 operations for simple goiter with a mortality rate of 0.86 per cent. For all patients up to forty years (1,682 cases), the mortality was only 0.06 per cent. In patients under the fortieth year, these operations, performed according to the approved present-day technic, are practically devoid of risks. The risks increase rapidly thereafter; after the sixtieth year, in the absence of urgent indications, it is preferable not to operate.

Operative treatment is indicated in all forms of simple goiter, the goiter of adolescence, of pregnancy and of the menopause being excepted, if the goiter, by its pressure, causes: (a) *Respiratory disturbances* (bronchitis, pulmonary emphysema, obstructive dyspnea, asphyxia, etc.) In all patients presenting symptoms of obstructive dyspnea, early intervention is urgently indicated. (b) *Circulatory disturbances*. Many goitrous patients are cardiovascular, cardio-renal defectives. "Every goitrous patient is exposed to asphyxia and to cardio-vascular accidents"¹¹. "A goitrous patient is predisposed to myocardial disease"¹². (c) *Nervous disturbances*. "The paralysis of the recurrent laryngeal nerve which antedated the operation, in ten cases was not improved

by the operation"¹⁴. (d) *Difficulty in deglutition*. (e) In the presence of severe pain, of unsightly deformity, of rapid growth of the goiter. (f) If the goiter becomes excessively large, interfering with the patient's work, with his sleep in the recumbent posture. (g) If the goiter does not respond to medication. One should not lose sight of the dangers of non-operative methods. Hyperthyroidism has followed treatment by radium, by serum, by injections of boiling water, etc. As adenomata of the thyroid gland do not respond to medication, they should always be removed. Operation reveals the relation of the goiter to the other cervical structures, shows whether the goiter extends into the thoracic cage, around the trachea to the esophagus, etc.

Accurate and detailed knowledge of the origin and nature of the operative and post-operative dangers incident to intraglandular enucleation and to subtotal thyroidectomy acts as an incentive to early, to more timely operations and to the institution of surgical relief previous to the advent of local complications and previous to the development of degenerative visceral changes. The earlier the operation, the less the risks, the better the end-results. Timely operations skillfully performed will lessen the frequency and the morbidity of the accidents herein considered, will reduce the operative mortality and improve the end-results.

These surgical complications, avoidable or unavoidable, of minor or major importance, are due, in part, to the patient's unfavorable physical condition at the time of operation, to the use of a method of anesthesia not adapted to the case at hand, to lack of proper correlation of the anesthetic to the technic, to the operator's lack of technical skill, experience and judgment in surgery of the neck, etc. Owing to the study given to diseases of the thyroid in recent years, these accidents are now better recognized, better understood and better managed. The main conditions that may confront the operator are: hemorrhage, primary or secondary; injuries to the recurrent laryngeal nerve or nerves (compression, contusion, laceration, division); injuries to, or partial or complete removal of, the parathyroid glands (tetany); postoperative hyperthyroidism; excessive removal of thyroid tissue (myxedema); and postoperative infections. Chief among the uncommon complications are:

air embolism, collapse of the trachea, esophageal injuries, pneumonia and recurrence of the goiter. Complications, such as unilateral or bilateral division of the sympathetic and vagus nerves, injury to the pleura, etc., which we have not met in our private or hospital practice, we refrain from discussing.

Hemorrhage.—This is of arterial, venous, capillary or mixed origin. In operating on goiters, we are operating in a very vascular region, on a vascular organ, an abnormally vascular organ. The thyroid gland presents extensive anastomoses not only between the vessels of the same lobe, but also between those of the different lobes. After ligation of the four thyroid vessels, the circulation is re-established through extraglandular anastomoses¹⁶. Serious hemorrhage may occur at the time of operation, immediately after the patient has been conveyed to bed or during the postoperative period.

At the time of operation, some hemorrhage is unavoidable. Profuse hemorrhage⁵ must be guarded against: it is alarming and, if not controlled, may prove fatal. The vessels of a goitrous thyroid gland show a marked tendency to degeneration. They are dilated, their elasticity is impaired, they tear easily. In some cases, the cervical veins, especially those located at the lower part of neck, are dilated tremendously. The arteries show a thickening of the intima and degeneration of the elastic fibrillae. Care must be taken not to injure the internal jugular veins or the carotid arteries. During the operation, owing to the lowered blood pressure, small arterioles and venules may not bleed and thereby escape ligation or suturing. With the return of consciousness, the blood pressure rises and hemorrhage may occur. Immobilization of the operative region not being feasible for the first two days following the operation, the patient is to be closely watched, as violent coughing, violent retching, vomiting, too frequent change of position and undue activity can bring on abnormal intravenous pressure, followed by hemorrhage.

Secondary hemorrhage, following thyroidectomy, may be sufficiently serious to cause death. Chief among its causes are premature absorption, slipping or unknotting of unsecurely tied ligatures, erosion of vessel-walls, errors of technic such as faulty asepsis, overlooking of

bleeding points at time of operation, delayed removal of drains, etc.

Hemorrhage manifests itself by pallor, rapid and superficial breathing, rapid and weak pulse; the dressings may be saturated with blood. If the hemorrhage be not checked, it leads to obstructive dyspnea, to asphyxia; it may result in collapse. The loss of blood in itself is a danger. Furthermore, the extravasated blood may exert dangerous compression on the trachea, thereby giving rise to serious respiratory disturbances.

In cases of secondary hemorrhage, reopen the wound widely and carefully and rapidly remove all the blood clots. Locate the bleeding points and ligate the bleeding vessels at their divided ends; reunite the wound edges and apply appropriate dressings. After the hemorrhage has been controlled, if the pulse be alarmingly weak, give normal salt solution subcutaneously and rectally and also such medicinal agents as are indicated.

To lessen hemorrhage, primary or secondary, operative or postoperative, always: (a) Operate in suitable surroundings, aided by competent assistants, and as rapidly as is consistent with the indications, with the patient's safety. It is needless to employ a long and laborious technic. Celerity is an element of success. (b) Use an incision that gives an adequate exposure of the goiter. (c) Be gentle in all operative maneuvers. There should not be any needless traumatizing of tissues, any avoidable tearing of vessels, etc. The rupture of a large deep-seated vein leads to troublesome hemorrhage and to an obscured operative field. (d) Secure thorough hemostasis. Keep the operative field as dry as possible from start to finish. Every bleeding point should be tied with catgut before the wound is closed. (e) Follow standard operative technic: knot all ligatures carefully, grasp and ligate veins as they are divided. It is not necessary to place a cartload of hemostatic forceps on the patient's neck. In goiter operations, attempts to permanently control hemorrhage by compression are unreliable. In the enucleation of adenomata, all dead spaces are to be obliterated by suturing.

Recurrent Laryngeal Nerve Injuries.—The recurrent laryngeal nerves² are more commonly injured than is believed. They supply all the muscles of the larynx except the cricothyroid.

Dubs²¹, in 840 goiter operations, reports twenty-six cases of recurrent nerve injury. Capelle¹⁷, in 1,700 bilateral resections, had 1.3 per cent permanent injuries of the recurrent laryngeal nerve. In operations on goiters, the branches or trunk²⁶ of one or both nerves may be clamped, compressed, contused, stretched, lacerated, torn, included in a ligature or divided. Postoperative paralyses of these nerves are occasionally due to their inclusion in scar tissue, to their compression by inflammatory exudates or to the retraction of cicatricial tissue. The pareses or paralyses caused by injuries of the superior laryngeal nerve are not so manifest, not so significant as those due to recurrent nerve injuries and will receive here no further mention. An injury of the recurrent laryngeal nerve may be symptomless, may escape detection. It may first be detected by mirror examination of the larynx and may have only slight appreciable effect: a change in the pitch of the voice, more or less permanent hoarseness, slight difficulty in breathing, etc. When a unilateral nerve injury is not compensated by the uninjured vocal cord, aphonia, obstructive dyspnea and other symptoms result. "The complete restoration of phonation and respiration to normal occurs with restoration to normal of the muscles and cord on one side"⁸. Normal voice is restored through compensatory efforts of the normal cord.

Vocal cord paralyses of operative origin result from stretching, clamping, tying, or division of recurrent laryngeal nerve or nerves. Traumatic injuries unassociated with complete nerve division produce symptoms of a temporary character, symptoms which in time disappear¹³. Injuries involving both recurrent nerves constitute a serious complication. If both cords assume the cadaveric position, there follows a permanent aphonia and later an obstructive dyspnea which, if unrelieved, may be a contributing or decisive factor in the patient's death. Complete division of both nerves has resulted in death from deglutition pneumonia.

Preoperative mirror examination of the larynx gives the examiner exact and positive information concerning the state of the vocal cords⁹; it is a protection to the physician and to the patient. Previous to operation, one cord may be found to be motionless. When one

nerve is paralyzed, the patient depends solely on one cord for phonation and normal respiration; in these cases it behooves the operator to be most careful not to injure the opposite and unaffected nerve.

The recurrent laryngeal nerves are found posterior to the capsule of the thyroid gland, along the side of the trachea and in the groove between it and the esophagus. By scrupulously respecting the posterior capsule with which the nerves are intimately associated, the recurrent laryngeal nerves, always, and the parathyroid glands, almost always, will remain uninjured. The recurrent laryngeal nerves and the parathyroid glands are most surely avoided by leaving the region they traverse entirely unmolested and by not removing the posterior mesial lower part of each lobe of the thyroid gland. Gentleness in the use of hemostatic forceps, in the insertion of sutures and in the handling of tissues tends to lessen the incidence of nerve injury. Rough attempts to shell out, to drag out a deep seated goitrous gland may so stretch the recurrent laryngeal nerves as to cause paralysis of both vocal cords. The nerves may be pinched by a hemostat with other tissue, may be included in a ligature. Some operators, in resecting the lobes of the thyroid gland, proceed from within out. At the time of the patient's discharge from the hospital, re-examine the larynx and determine the presence or absence of any incompetency of the vocal cords.

After subtotal thyroidectomy, loss of voice of varying degrees⁸ is due to one or more of the following factors: (a) Change in position of the laryngeal muscles and cartilages, due to the removal of the goiter and the consequent shifting of the displaced larynx back into its normal place. (b) Edema, obstructive or inflammatory, of the laryngeal and perilaryngeal tissues. Keep the line of dissection away from the trachea and larynx, thereby saving more tissues about these structures and preventing the swelling from extending to the mucous membrane. The laying bare, the denudation of the trachea predisposes to severe bronchitis and endangers somewhat the recurrent laryngeal nerves. In catching bleeding vessels on the surface of the trachea, include in the ligatures as little as possible of the perivascular tissues. These tissues contain the sensory nerves to the trachea and their irri-

tation causes cough and increased secretion of mucus. (c) A true myositis. (d) Trauma of the recurrent laryngeal nerve. (e) Prolonged interference with function.

Pemberton, in discussing postoperative obstructive dyspnea, says: "The routine laryngeal examination of all patients before and after operation and the careful search for a traumatized recurrent laryngeal nerve in all cases of obstructive dyspnea coming to necropsy, has clearly demonstrated that the cause of fully 90 per cent of all cases of marked postoperative obstructive dyspnea is due to a paralysis of one or both vocal cords, the result of an injured inferior laryngeal nerve."

If the vocal cords be in the middle line position, the same author suggests one of the following three procedures: (a) Permanent tracheotomy. This has obvious disadvantages. (b) Removal of a portion of one vocal cord and of part of the ventricle. This may result in aphonia; it may give only partial relief. (c) The descending branch of the hypoglossal nerve has been anastomosed to the inferior laryngeal nerve (Frazier). This procedure is difficult and is, as yet, only in the experimental stage. Crile¹⁴ advises that the vocal cords be clipped in the center of their free margins, leaving a free space for the passage of air.

Postoperative Tetany.—The parathyroid glands, four in number, two on each side, are, as a rule, located posterior to the capsule of the thyroid gland and lateral to the esophagus. These glands, inconstant in number, irregular in location, have a function which appears distinct and separate from that of the thyroid gland. Their physiological importance is out of proportion to their small size. The anatomical integrity of these glands is of essential importance to the human organism. Numerous theories concerning the function of these structures have been advanced. They are said to regulate muscle tonus, to form a part of the detoxication metabolism of the body and to control calcium metabolism²¹. Calcium metabolism enters into many medical problems.

The prophylaxis of postoperative tetany presents difficulties due chiefly to the irregularity in number and location of the parathyroid glands. According to most anatomists, the parathyroid bodies receive their blood supply¹⁵ from tributaries of the superior and inferior

thyroid arteries and from anastomotic branches of the esophageal arteries. Postoperative tetany is infrequent. It can be caused by any interference with the blood or nerve supply of the parathyroid glands which may follow direct trauma, pressure from obstructive or inflammatory edema of surrounding parts, contraction or retraction of scar tissue, or by removal of one or more parathyroid glands. The parathyroid glandules, after interference with their blood supply, do not resume their function and the manifestations of tetany do not come to an end before the collateral circulation is reestablished.

De Quervain²⁵, in 2,203 goiter operations, never had a case of pronounced tetany. He observed symptoms of slight functional disturbance of the parathyroids in only three patients. The best technicians take great care neither to traumatize nor to remove any of these glandular bodies. Injury and removal of the parathyroids can almost always be avoided by leaving a layer of glandular and capsular tissue undisturbed at the back of the thyroid gland. This same precaution protects the recurrent laryngeal nerves.

The deficiency of one or two parathyroids may not cause hypoparathyroidism. Nevertheless, if a parathyroid gland be accidentally removed, it should be transplanted at the close of the operation, preferably beneath the remaining thyroid lobe. Be sure of the nature and state of the transplant. We advise this because the actual condition of the individual glands is not known, as they are often rendered useless by hemorrhage or degenerative changes.

Eiselsberg¹⁷, in 2,373 goiter operations, records six deaths from tetany; six other patients developed chronic tetany. Knaus¹⁸ reports 619 goiter operations. Five of these were followed by tetany; three recovered and two died. As the operation is nowadays usually bilateral and less radical and because surgeons have come to realize fully the value of preserving some part of the thyroid gland on the posterior capsule, injury to the parathyroids is of very infrequent occurrence. Leave the posterior capsule; do not remove it.

Parathyroid insufficiency may appear any time from six hours to three or four months after operation²⁰. It almost always manifests itself by circumoral pallor, by a tight glossy appearance of the skin of the forehead, nose

and face, by a sensation of stiffness in the fingers, by carpopedal spasms, etc. It is difficult for the patient to raise his fingers to his mouth or to hold anything. The lowered calcium content of blood serum or plasma causes exaggerated nervous irritability (MacCallum). These symptoms pass off in a few hours or a day, possibly after one or two doses of morphine, or the condition gradually progresses until the contractions involve the muscles of the hands and arms; sometimes the contractions become general. If, in the course of goiter operations, injury or removal of the parathyroid bodies be avoided, tetany will be a rare complication and will occur only in its rarest forms.

Postoperative tetany is treated as follows:

(a) By restoring the calcium content of the blood serum to within normal limits. This is effected by administering calcium lactate, gr., xx., every four hours until relief is obtained. It is to be given orally, by enema, subcutaneously and exceptionally, intravenously and in larger doses, if necessary. The calcium lactate should be given in water and continued as long as the patient shows symptoms of nervous irritability such as Chvostek's and Trousseau's signs.

(b) By transplanting human parathyroids. The parathyroids used are obtained from fatal accident cases and from normal infants who have died during delivery. These transplants are difficult to obtain, are readily absorbed and of service to the organism¹⁵, while the remaining parathyroids undergo compensatory hypertrophy, or the injured or diseased ones recover. Transplantation may be made in the left abdominal wall between the peritoneum and the rectus muscle. Should the patient later submit to an operation for appendicitis, the transplants will not be disturbed. Some operators embed the grafts in the supraclavicular fossa beneath the cervical fascia. The microscope enables one to determine whether or not the transplant is unquestionably parathyroid tissue.

(c) By the various parathyroid serums in the market.

(d) By the ingestion, orally, of parathyroid products. Lahey¹¹ and others dispute the therapeutic value of parathyroid extracts.

(e) By medicinal therapy largely symptomatic in nature. Chloral hydrate per mouth or per rectum, repeated as needed; morphine

sulphate; magnesium sulphate in 25 per cent solution subcutaneously^{15,20}. Have patient drink plenty of milk and avoid all kinds of meat.

Air Embolism.—It is a possible, though a very uncommon complication of operations about the neck. Many active surgeons possess only a theoretical knowledge of the condition. Among its predisposing etiological factors should be mentioned: the restlessness of patients operated upon under local anesthesia, great loss of blood and wounds of valveless dilated veins. From the prognostic standpoint, owing to its rarity, it is almost negligible.

If during inspiration air is sucked into a wounded vein and carried to the right heart, there is usually produced a peculiar whirling or churning sound synchronous with the cardiac systole. The danger of this complication is in direct ratio to the quantity of air aspirated and to the rapidity with which it enters the veins. If dangerous symptoms or death do not immediately follow the occurrence of air embolism, the accident need not cause the surgeon any further worry. A few cases of temporary paralysis due to air embolism are recorded in the literature.

Treatment.—Prophylaxis is the watchword. To lessen its incidence, keep in mind its possibility, minimize hemorrhage, avoid rough handling of tissue, keep patient in the horizontal recumbent position during the entire operation (the sitting posture favors the development of air embolism) and doubly ligate large veins before dividing them²³.

As soon as this accident occurs, to prevent further aspiration of air, elevate the foot of the table, tampon and flush the wound with normal salt solution. While the tampon is being cautiously removed, clamp the wounded vein or veins and ligate them. Artificial respiration may lead to more air aspiration and therefore is not to be practiced. Naegele, Jehn and others used forced inhalation of oxygen.

Tracheal Collapse.—Long continued, unilateral or bilateral, pressure of voluminous goiters can determine either a loss of elasticity, a softening, an atrophy or an almost complete disappearance of the cartilaginous tracheal rings. In these cases, the trachea, after losing the support afforded by its attachment to the thyroid gland, sometimes persists in

kinking and in collapsing at the close of the operation. There is no danger of tracheal collapse if the tracheal rings are normal. Many factors enter into the causation of tracheal flattening and collapse: the patient's age, the goiter's histological structure and consistency and, especially, the long continued traction or pressure exerted by the goiter as in the scabbard trachea.

Collapse of the trachea causes obstructive dyspnea, amounting, in some cases, to asphyxia. With increased violence of the inspiratory efforts, there results a more complete mechanical obstruction to respiration.

Tracheal collapse may be fatal^{2b}; in extreme cases, it may necessitate a tracheotomy²³. It may take days, even weeks, for the trachea to recover its efficiency. In about six months, complete recovery usually takes place.

Treatment.—By means of a sharp tenaculum inserted on each side of its collapsed portion, the trachea is drawn forward. Should collapse persist or the trachea show signs of recurring collapse, fasten, by a few catgut sutures (stay sutures), the sides of the trachea to the surrounding tissues, or fix the resected goiter stumps to the undersurface of the sternocleidomastoid or omohyoid muscles and thus secure the tracheal dilatation and prevent the recurrence of the collapse. Avoid perforating, by needle or tenaculum, the cartilaginous rings, or the entire thickness of the tracheal wall, and thereby eliminate such complications as necrosis of tracheal rings, wound infection, etc.

Tracheotomy is rarely indicated. In twenty-three cases of tracheal collapse due to tracheomalacia, Czermak performed it only twice.

Recurrence of Goiter.—Recurrence of goiter and recurrence of symptoms are noted in a small and decreasing percentage of cases. The portion left, the opposite lobe or the isthmus, may hypertrophy. It is most frequent within the first five years after operation²². Recurrence causes symptoms chiefly when bilateral. Some recurrences cause only cosmetic defects. After enucleation, cysts or adenomata of new formation have been observed. Dubs²¹, in 840 goiter operations, reoperated fifty-three patients in each of which the recurrent goiter visibly and palpably exceeded the normal consistency and size of the thyroid gland.

If the operators underestimate the amount of gland tissue to be removed, if the blood supply of the tissue left is not sufficiently shut off, if the primary cause of the goiter persists, if focal infections are left untreated, recurrence is more probable. Recurrences become fewer as the surgeon's experience increases.

In general, the amount of tissue to be left should be the functional equivalent of a normal gland.

Postoperative Prophylactic Treatment.—The use of boiled drinking water, orange juice, the suppression of all foci of infection (teeth, tonsils and others), etc., is very important. I follow the practice of Crile²⁰, who believes that, by giving minute doses of iodine for not less than one year after thyroidectomy, recurrences are prevented. In this connection, keep in mind that some patients are iodine-refractory and others are iodine-susceptible. Operation on a recurrent goiter is more dangerous than the primary operation, on account of the necessity of preserving an adequate amount of gland tissue and of the presence of cicatricial adhesions.

Postoperative Hyperthyroidism.—Owing to the present-day combined medical and surgical treatment of goiter cases, postoperative hyperthyroidism is infrequent. According to the latest researches, it follows the entrance of glandular elements and ferments squeezed out of the gland into the circulation. The absorption of thyroid secretion, during the operation and afterwards, also takes place through the wound surface. The patients are seized by a psychic storm, usually of an agitated maniacal type, there is restlessness, accelerated pulse rate, reaching 150 to 160 per minute, elevation of temperature (105° to 106° F.), disturbed cardiac action, etc.

The frequency and severity of postoperative hyperthyroidism are lessened by observance of the following precepts: Operate as rapidly as consistent with the patient's safety and the completeness of the operation, secure perfect hemostasis, avoid squeezing of the gland and all needless traumatizing of tissue, make ample provision for drainage and see that oozing blood and effused thyroid secretion escape easily and do not remain in contact with the wound surface.

Drainage relieves tracheal compression due to postoperative hemorrhage and prevents

hematoma formation. After all goiter operations, give large quantities of normal salt solution subcutaneously and rectally. By this practice the absorption of thyroid secretion is lessened and general elimination is increased. For the high temperature, the cold pack is most serviceable.

Postoperative Myxedema.—Total thyroidec-tomy, having been frequently followed by myxedema, is now no longer performed. In goiter operations, hypothyroidism will not result if a small piece of thyroid tissue with adequate blood and nerve supply is left. "The old procedure of removing one lobe is inadequate. The dictum that one-fifth of the thyroid mass should be left is equally unsatisfactory"²⁷. If we leave a quantity equal to about one-fourth of the health gland, symptoms of thyroid deficiency will not develop. In the individual case, the quantity of gland tissue to be saved is to be left to the surgeon's judgment. He alone has a thorough knowledge of the patient's condition. This is essential to determine when and what to do rather than where and how to do it. Some operators leave small masses at each horn of the organ and, in addition, a thin layer of thyroid tissue attached to the posterior untouched part of the gland capsule. These masses are well supplied with blood and lymphatic vessels and can, if needed, undergo compensatory hypertrophy.

In postoperative myxedema, there is impaired memory and intelligence, there is apathy, somnolence, great disinclination to effort. An edematous swelling of the skin develops and the patients complain of feeling cold. In young individuals, the growth is stunted. Hypothyroidism is characterized by a definite reduction in the basal metabolism; the metabolic rate is always lower than that of normal individuals of the same age and sex.

The successful management of these cases is one of the noteworthy triumphs of organotherapy. Institute treatment at the first appearance of symptoms. Make up the deficit of thyroid secretion by thyroid treatment. In directing and guiding thyroid administration, metabolic rate determinations are of the greatest importance. Bring the patient's metabolism to normal and ascertain the dose necessary to keep it there. The patient is to be given iodothylin or another suitable preparation of thyroid gland or may be fed thyroid gland sub-

stance. The active principle of the thyroid gland, thyroxin, may be given intravenously. Thyroid gland tissue has been implanted. The treatment by organotherapy is to be continued for weeks, for months and thereafter is continued intermittently for some time; it may have to be continued for many years. In course of time, the symptoms of thyroid deficiency usually subside and may permanently disappear.

Postoperative Infections.—Despite careful asepsis and perfect hemostasis, every now and then postoperative infections occur. They usually come from without, exceptionally, from within. In their causation, local tissue resistance and the individual's general resistance are not negligible factors. In the space remaining after removal of the goiter, blood and wound secretion easily pool and are prone to infection.

The indication is self-evident. Let your technic be flawless. Do not wound the trachea or the esophagus; these wounds are often followed by infection of neighboring regions. Should the esophagus be accidentally wounded, immediate exact apposition and suture of the wound edges is indicated. After all goiter operations, drain for about forty-eight hours, thereby preventing the symptoms and sequelae due to retained thyroid secretion and extravasated blood. The treatment of postoperative infections occurring in this region is that of infections in general.

Postoperative Pneumonia.—Owing to its unfavorable prognosis, it always gives the clinician the greatest concern. The pain in the wound hinders expectoration and lung aëration. The pneumonia may be endemic or epidemic in nature, may be postanesthetic, may follow the aspiration of mucus, blood or stomach contents, may follow exposure to cold before, during or after operation, may be due to infective emboli, etc., but, most often, almost always, is primarily due to an injury of the recurrent laryngeal nerve or nerves. In the etiology of pulmonary complications, injury of the recurrent laryngeal nerve or nerves is the paramount factor. In old individuals, this condition is frequently hypostatic in type and fatal in outcome. The abandonment of prolonged anesthesia, the avoidance of unnecessary exposure, denudation and rotation of the trachea and especially, care not to injure the recurrent laryngeal nerves, have practically

eliminated postoperative pneumonia as a danger in goiter operations. If by accident the trachea be opened, guard against the aspiration of blood. Should the latter occur, lung abscess or deglutition pneumonia may follow. The treatment of postoperative pneumonia is, as yet, purely symptomatic.

Disturbed Deglutition.—In dislocating large goiters, the nerves supplying the pharyngeal muscles may be traumatized. Dysphagia of several days' duration always follows goiter operations; it is usually manifested by pain on swallowing. Sometimes after operation, patient chokes when trying to swallow fluids. The liquid flows back into the nose or drops into the larynx and trachea. Combat this by turning patient on his face with his head over the edge of the bed; place the glass on the floor or on a low stand and let him drink through a tube uphill. All nourishment will have to be given in this manner until normal control of the pharynx is regained.

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59 East Madison Street.

Correspondence

Intramuscular Injections of Sugar Solutions in the Treatment of Tuberculosis.

Staunton, Va.,

December 21, 1925.

TO THE EDITOR:

At this time, I wish to make a preliminary statement as to the treatment of tuberculosis, including pulmonary forms, by the administration of intramuscular injections of sugar solutions, together with suitable doses of parathyroid given hypodermically. Four cases at

present under treatment will be reported in detail.

I conceived the plan early in the present year—1925. The results obtained have not been had by any other plan of treatment. The rationale of the treatment has a well developed and clearly formulated hypothesis. I shall be glad to outline the plan to any one.

MARSHALL J. PAYNE, M. D.

Miscellaneous

New Commandments for the "Common Doctor."*

By W. W. BROWN, M. D., Shenandoah Junction, W. Va.

Thou shalt have no favorites in newspaper correspondents in order to see thy name in print.

Thou shalt not bow down to graft, nor to the image of gold.

Thou shalt hold thy tongue when sued for malpractice, remembering silence is golden and that thy adversary is after thy gold and will get it if thou art not discrete.

Remember the Sabbath day and keep it holy; six days shalt thou labor and the seventh also, if thou hast an opportunity to do good or the prospect of a good fee.

Honor the fathers of thy profession, that thy days may be long upon the land and thy usefulness lengthened, through the example and achievements of thy fathers.

Thou shalt not sanction adultery nor produce an abortion.

Thou shalt not steal thy brother's patients nor forgive him whom he steals thine.

Thou shalt not kill thy brother's opportunity for earning a living, nor murder his chance of usefulness. He, probably, is thy superior.

Thou shalt not bear false witness against thy neighbor, nor speak evil of his good name. His reputation may be better than thine.

Thou shalt not covet the specialist's fee, nor dispute over a division. Let him have all the money; he may think he earned it. You must be content with glory.—*Selected.*

The Medical Liar.*

By W. W. BROWN, M. D., Shenandoah Junction, W. Va.

Shakespeare says, "All Men are Liars." He must have had in mind newspaper correspondents, as we know what famous liars they are, particularly in war time and political campaigns.

It is said that Napoleon, in one of his wars, inquired what the liars had to say about it, and Walter Page wrote to President Wilson, in 1914, that the whole world had gone to lying.

But we should take the position that all men are *not* liars; that truthfulness is normality, just as the absence of disease (health) is the normal condition of the human body, and morality the normal condition of the human mind; just as chastity is the normal condition of womankind, just as mankind is instinctively religious and normally spiritual.

Shakespeare is authority for the statement that

"Some men are born great, others achieve greatness, whilst others have greatness thrust upon them." I would like to paraphrase this statement to read: "Some men are born liars, others achieve lying, whilst others have lying thrust upon them."

Another great authority in letters and the science and practice of Democratic Government, Woodrow Wilson, divided the medical profession into three classes: the common liar, the damn liar, and the expert, and we shall follow this classification.

THE COMMON LIAR.

The Common Liar is he who has lying thrust upon him. He is the progressive liar, the reciprocal liar, the ethical liar, the optimistic liar, the physiological liar, the helpful liar, who will step aside from the beaten paths of truth to help a friend, or to save a girl's reputation, and the honor of the family. He it is who can say with the poet Foss:

"Let me live in a house by the side of the road,
Where the race of men go by—

The men who are good, and the men who are bad,
As good and as bad as I."

He is very much in the majority, as he constitutes the body and bulk of the profession. I should think that the character as portrayed in the book, "Beside the Bonnie Briar Bush" as "a doctor of the old school" represents this type. We all remember reading the death scene of William MacLure.

Drumsheugh put on his spectacles and searched for a comfortable Scripture, while the light of the lamp fell on his shaking hands and the doctor's face, where the shadow was now settling.

"Ma mither aye wantit this read tae her when she was sober," (weak) and Drumsheugh began, "In my Father's house are many mansions," but MacLure stopped him.

"It's a bonnie word, and yir mither was a sanct; but it's no for the like of me. It's ower gude; a' daurna tak it.

"Shut the buik an' let it open itsel', an' ye'll get a bit a've been reading every nicht the laist month."

Then Drumsheugh found the Parable wherein the Master tells what God thinks of a Pharisee and of a penitent sinner, 'till he came to the words: "And the publican, standing afar off; would not lift up so much as his eyes to heaven, but smote upon his breast, saying, 'God be merciful to me a sinner.'"

"That micht hae been written for me, Paित्रick, or any ither aulde sinner that has feenished his life, an' has naethin' tae say for himsel'!"

"Oud ye pit up a bit prayer, Paित्रick?"

"A' haena the words," said Drumsheugh in great distress; "wud ye like's tae send for the minister?"

"It's no the time for that noe, an' a' wud rather hee yersel'—juist what's in yir heart, Paित्रick; the Almighty 'ill ken the lave (rest) Himsel'."

So Drumsheugh knelt and prayed with many pauses.

"Almighty God—dinna be hard on Weelum MacLure, for he's no been hard si' onybody in Drumtochty—Be kind tae him as he's been tae us a' for forty year—. We're a' sinners afore Thee—. Forgive him what he's done wrang an' dinna cuist it up tae him—. Mind the fouk he's helpit—the weemen and bairnies—an' gie him a welcome hame, for he's sair needin' a' his wark. Amen."

THE DAMN LIAR.

The Damn Liar is the born liar, the vicious, contemptible, pathological liar, who pursues his journey in boasting of his success, in taking credit home, in spreading his bull literature over the pages of the Medical Journal and in scheming to injure his fellows and is soiling his feet with the slime of the

*Read at the meeting of the Norfolk and Western Railway Surgeons in Norfolk, Va., November, 1925.

Jungle, little realizing the fact that as he is spewing out his venom, he is setting his own ductless glands to secreting a poison that will result in aches and pains and a shortened life, overlooking the fact that to be poisoned with one's own secretion is a suicidal boomerang. He is ignorant of the truth of the Master's command, "All they that take the sword shall perish with the sword." He is vastly in the minority and exists only to be mentioned and avoided. No white robed forms will guide him to the Heavenly Mansions, as the Devil, the father of liars, has a mortgage on him, which he forecloses at once.

THE EXPERT LIAR.

The Expert Liar is he who has achieved lying. He is the learned member of the profession, usually a college Professor, or an editor of a Medical Journal and a chronic witness before the courts on all important cases where mind or life is at stake—but influencing the decision but little. It is said that environment either elevates or degrades character. Likely, the intelligent jurymen regards the expert as a man who seeks notoriety and gold, who has commercialized his profession, and whose contact and association with the legal fraternity has not been ennobling and elevating. The expert, however, like the common practitioner, has his visions founded on fact. For instance, Dr. Frank Hamilton, a distinguished alienist, two years before the World War, wrote an article for the *North American Review*, wherein he stated that the Kaiser of Germany was a paranoic—a man of ungeared mind, who was not fit to govern his own country or live in amity with his neighbors. Had this vision been heeded, much trouble would have been avoided. This expert, however, is able to take care of himself, even when "life's fitful dream is over." I imagine seeing one of this favored class, as soon as the breath has left the body, rushing up the Golden Stairs and pushing aside the common practitioner in his eagerness to reach the Pearly Gates. He knocks, and St. Peter appears with the question, "Who comes here?" He answers, "A poor Pilgrim, who has left the attractions of the world, but who now wishes to walk the Golden Street, to behold the Thrones of Glory, to hear the harpers with their harps, and to join in the singing of the 'New, New Song.'" "Who are you?" "A noted Specialist and leading physician, and I do not come empty handed." "I know that" answered St. Peter. "as we have your record, but what special recommendation have you?" "I was a witness before the Dayton trial court." "Were you with Darrow or Bryan? I will warn you, however, that Mr. Bryan is here and near the Throne. Were you made out of dust, or did you ascend gradually from the monkey? We want the truth." "For once in my life I can at least tell the truth," answered the pilgrim. "I am an evolutionist." St. Peter paused for a minute, then threw open the door and said, "It may be a tight squeeze, but walk in."

The Truth About Medicine

In addition to the articles enumerated in our letter of October 30th, the following have been accepted:

Abbott Laboratories

Arsphenamine—D. R. L., 0.3 Gm. Ampules.

Arsphenamine—D. R. L., 0.5 Gm. Ampules.

Neorsphenamine—D. R. L., 0.15 Gm. Ampules.

Neutral Acriflavine Jelly 1:1000—Abbott.

Eli Lilly & Company

Para-Thor-Mone—Lilly.

Para-Thor-Mone—Lilly, P-20, 5 c.c.

Merrell-Soule Company

Powdered Whole Lactic Acid Milk—Merrell-Soule.

Parke, Davis & Company

Boro-Chloretone.

Ovarian Residue Desiccated—P. D. & Co.

Capsules Ovarian Residue Desiccated—P. D. & Co., 5 grains.

Tablets Ovarian Residue Desiccated—P. D. & Co., 5 grains.

Ovarian Substance Desiccated—P. D. & Co.

Tablets Ovarian Substance Desiccated—P. D. & Co., 5 grains.

Swan-Myers Company

Ampoules Dextrose, 50 Per Cent., 20 c.c.—Swan-Myers.

NEW AND NON-OFFICIAL REMEDIES.

Arsphenamine D. R. L. 0.3 Gm. Ampules—Each ampule contains arsphenamine—D. R. L. (New and Non-official Remedies, 1925, p. 47), 0.3 Gm. The Abbott Laboratories, Chicago.

Arsphenamine—D. R. L., 0.5 Gm. Ampules.—Each ampule contains arsphenamine—D. R. L. (New and Non-official Remedies, 1925, p. 47), 0.5 Gm. The Abbott Laboratories, Chicago.

Neorsphenamine—D. R. L. 0.15 Gm. Ampules.—Each ampule contains neorsphenamine—D. R. L. (New and Non-official Remedies, 1925, p. 49), 0.15 Gm. The Abbott Laboratories, Chicago.

Scarlet Fever Streptococcus Antitoxin—Lederle (Refined and Concentrated).—A scarlet fever streptococcus antitoxin (Jour. A. M. A., May 2, 1925, p. 1338). prepared by immunizing horses by the subcutaneous injection of the toxic filtrate obtained by growing the scarlet fever streptococcus in broth; also by injecting cultures of the scarlet fever streptococcus. It is marketed in syringes containing 1 c.c. and in syringes containing 10 c.c. Lederle Antitoxin Laboratories, New York.

Saubermann Radium Emanation Activator, 100,000 Mache Units.—Each apparatus (New and Non-official Remedies, 1925, p. 315), imparts about 36 microcuries (100,000 Mache units) to about 500 c.c. of water daily. Radium Limited, U. S. A., New York (Jour. A. M. A., Nov. 7, 1925, p. 1487).

Para-Thor-Mone—Lilly—Parathyroid Extract—Colip—A stable, aqueous solution containing the active principle or principles of the parathyroid gland of cattle, having the properties of relieving the symptoms of parathyroid tetany and increasing the calcium content of blood serum. It is standardized by its capacity to increase the blood serum calcium in normal dog: one unit being defined as one one-hundredth of the amount of solution required to cause an increase of 0.005 Gm. of calcium in the blood serum of a 20 kilogram dog. Para-Thor-Mone—Lilly relieves the tetany of parathyroidectomized dogs and by its continued daily administration in small doses, further attacks may be prevented. The product is a most potent therapeutic agent and its use may be attended with great danger unless due precautions are taken. It is claimed to be specific in parathyreopriva and to have relieved acute and chronic tetany following thyroidectomy, so-called idiopathic tetany and infantile tetany. Para-Thor-Mone—Lilly, is marketed in 5 c.c. ampules, each c.c. of solution containing 20 units. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., Nov. 14, 1925, p. 1559).

Neutral Acriflavine Jelly 1:1,000—Abbott. Neutral Acriflavine—Abbott (New and Non-official Remedies, 1925, p. 134) 0.1 part, dissolved in karaya gum jelly, containing sufficient sodium hydroxide so that the finished product has a pH of from 8.3 to 8.5, to make

100 parts. Abbott Laboratories, Chicago. (Jour. A. M. A., Nov. 28, 1925, p. 1729).

PROPAGANDA FOR REFORM.

Lactic Acid Milk.—New and Non-official Remedies brings out that there is considerable evidence in favor of the therapeutic value of soured milk—particularly of sour milk containing an abundance of living *B. acidophilus*. Whereas the administration of *B. acidophilus* has for its object the implantation of living *B. acidophilus*, there are reports which indicate that the administration of milk sugar may produce the same results through promoting the growth of aciduric bacteria normally present in the intestinal flora. (Jour. A. M. A., Nov. 14, 1925, p. 1578).

Horse Dung Allergen—Squibb, **House Dust Allergen**—Squibb, **La Page's Glue Allergen**—Squibb, and **Street Dust Allergen**—Squibb, Not Acceptable for N. N. R.—These are proposed for use in determining specific sensitiveness. The Council on Pharmacy and Chemistry reports that, since the composition of horse dung, house dust, glue and street dust is indefinite, it is irrational to test the hypersensitivity of a patient by means of a stock preparation; therefore, the Council finds these preparations of E. R. Squibb & Sons unacceptable for new and Non-official Remedies. (Jour. A. M. A., Nov. 7, 1925, p. 1504).

Vitalol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Vitalol (Daub Chemical Co., Brooklyn), "the all year round tonic," is stated to have the following composition: "Egg yolk, 8%; Lecithin, 1.5%; Hemoglobin, 1.5%; Ferri Albuminate, 1.5%; Cod Liver Oil, 25%; Glycerin, 9.5%. Vehicle used contains sugar, terpenless oil of lemon, and whisky, giving an alcoholic equivalent of 20%." Vitalol, being a complex and irrational mixture of uncontrolled composition, marketed with unwarranted therapeutic claims and in a way to invite its indiscriminate and ill-advised use by the public, was found unacceptable for New and Non-official Remedies by the Council. (Jour. A. M. A., Nov. 7, 1925, p. 1504).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the authorities charged with the enforcement of the Federal Food and Drugs Act: **Grandma's Compound Sarsaparilla** (Park Laboratory Co., San Antonio, Texas), consisting essentially of potassium iodid, alcohol, with plant extractives including a laxative drug, sugar, water and flavoring. **Hooper's Anodyne** (O. P. Hooper Chemical Co., Chester, Pa.), consisting essentially of morphin hydrochlorid, glycerol, sugar, salicylic acid and water, flavored. **Ark-A-Lu** (Vawter Drug Stores, Monroe, La.), consisting essentially of Epsom salt, iron chlorid, nitric and hydrochloric acids and water, with flavoring. **Sanita** (Newer Novelties Co., Los Angeles, Cal.), consisting essentially of capsules of cacao butter and tannin, with a trace of boric acid. **D-O-D** (R. Burbach, West Allis, Wis.), consisting approximately of 93 per cent of baking soda, 6 per cent of potassium permanganate and a small quantity of Epsom salt. **Rose's Whooping Cough Remedy** (Aschenbach & Miller, Inc., Philadelphia), containing syrup, potassium nitrate, arsenic and cyanid. **A. D. S. Special Kidney and Bladder Pills** (American Druggists' Syndicate, New York), consisting of hexamethylenamin and extracts of plant drugs, including small quantities of resins and volatile oils mixed with magnesium carbonate. (Jour. A. M. A., Nov. 14, 1925, p. 1576).

Radium Ore Revigator.—Capitalizing the discovery of radium and radioactivity, water jars containing

as a part of the wall of the jar or as an accessory low grade radioactive ore are being sold under the general claim that they render water that is put into them, radioactive and that this radioactive water will "make you well if you are sick and keep you from getting sick if you are well." One of the most widely advertised of these devices is known as the **Radium Ore Revigator**, put out by a California Company. From the advertising claims the impression is gained that ill health is caused by the lack of radio-activity in our drinking water, that the curative properties of certain mineral waters have been shown to be due to their natural radioactivity and that many ills are cured by the use of water from the "Revigator" jars. Even if the water from the jars has the radioactivity claimed, this is so small that it has no therapeutic significance. (Jour. A. M. A., November 21, 1925, p. 1658).

Side-Lights on Intravenous Medication.—Intravenous injection involves difficulties of technic, with the possibility of local injuries to the peripheral blood vessels at the seat of operation. It presents dangers of bacterial contamination; the vehicle as well as the drug is immediately foreign to the blood, and other objections have presented themselves. The Council on Pharmacy and Chemistry has taken a decidedly conservative attitude toward the recognition of the scores of products intended for direct intravenous use. The wisdom of this stand has been attested anew by a recent report of Hanzlik and his collaborators who report that a large variety of substances cause definite and important changes in arterial blood of test animals, accompanied as a rule by disturbances in physiologic functions. (Jour. A. M. A., November 21, 1925, p. 1645).

Herradora Products and Intravenous Therapy.—In 1923, the Council on Pharmacy and Chemistry found the intravenous preparations of the Scientific Chemical Co. (Marcus Aurelio Herradora, president), not acceptable for New and Non-official Remedies, because of unwarranted and unsubstantiated statements in favor of intravenous and intramuscular administration of drugs and because of the complex and indefinite mixtures as represented by these specialties. From an examination of advertising recently received, there appears to be every reason to reiterate the Council's conclusion that "the propaganda contained in the advertising matter issued by the Scientific Chemical Company is detrimental to the rational practice of medicine and to the public health." (Jour. A. M. A., Nov. 21, 1925, p. 1660).

Diabesan.—The Council on Pharmacy and Chemistry reports that Diabesan (Solosan Co., Morristown, N. J., A. H. Werner, president), is claimed to contain as its chief therapeutic agent ". . . the trypsin of dead yeast cells . . ." and is said to be "indicated in all cases of diabetes and glycosuria."

The Council reports that the evidence in support of the claims made for Diabesan is contained in a paper written by A. H. Werner, the president of the Solosan Co., and that the paper contains a number of fallacies that vitiate the rather intangible and poorly written arguments; further, the available information seems to show that A. H. Werner is not a properly qualified medical authority. The Council concludes that the claims for Diabesan are not in harmony with accepted facts, nor supported by acceptable evidence; nor does there appear to be any evidence that trypsin—or a preparation such as Diabesan, said to contain it—has any value in the treatment of diabetes. (Jour. A. M. A., Nov. 28, 1925, p. 1747).

Distribution of Doctors in Virginia According to Population and Area.

The following tabulation, furnished us by the State Board of Health, is published because of the interest it holds for all doctors:

COUNTY	Population	Area Square Miles	Number of Doctors	Population per Doctor	Area per Doctor
*Chesterfield.....	21746	471	4	5438	117
Buchanan.....	16882	514	4	4220	128
Patrick.....	16850	485	4	4212	121
Franklin.....	26283	697	8	3285	87
Greene.....	6369	155	2	3184	77
Dickenson.....	15556	325	5	3111	65
Carroll.....	21361	458	7	3051	65
Louisa.....	17324	516	6	2887	86
York.....	8179	136	3	2726	45
Isle of Wight.....	14433	314	6	2405	52
Charles City.....	4793	188	2	2396	94
Lunenburg.....	16408	430	7	2344	61
Charlotte.....	18351	496	8	2294	62
King and Queen.....	9161	320	4	2290	80
Cumberland.....	9111	293	4	2277	73
King William.....	8827	263	4	2206	65
Brunswick.....	21850	557	10	2185	55
Prince George.....	17307	294	8	2163	36
Fluvanna.....	8650	285	4	2162	71
Westmoreland.....	10668	252	5	2133	50
Craig.....	4100	333	2	2050	166
Halifax.....	41991	814	21	1999	38
Lancaster.....	9757	130	5	1951	26
Bedford.....	31188	791	16	1949	49
Appomattox.....	9419	342	5	1883	68
Page.....	15058	322	8	1882	40
Buckingham.....	14885	584	8	1860	73
Richmond.....	7442	204	4	1860	51
Scott.....	25222	543	14	1801	58
Smyth.....	22958	435	13	1766	33
Southampton.....	28135	604	16	1758	37
Nelson.....	17487	473	10	1748	47
Essex.....	8542	258	5	1708	51
Gloucester.....	11894	223	7	1699	31
Powhatan.....	6760	273	4	1690	68
Botetourt.....	16557	548	10	1655	54
Floyd.....	13115	376	8	1639	47
Middlesex.....	8157	146	5	1631	29
Stafford.....	8118	274	5	1723	54
Princess Anne.....	14599	279	9	1622	31
Mecklenburg.....	32252	669	20	1612	33
Madison.....	9595	324	6	1599	53
Rockbridge.....	20626	616	16	1552	38
Surry.....	9305	278	6	1550	46
Tazewell.....	29181	531	19	1535	27
James City.....	6138	164	4	1534	41
*Elizabeth City.....	25910	54	17	1524	3
Amherst.....	20159	470	8	1519	58
Russell.....	20321	496	19	1490	26
Goochland.....	8863	287	6	1477	47
Amelia.....	10201	371	7	1457	53
Caroline.....	15954	529	11	1450	48
Greensville.....	11606	307	8	1450	38
Bland.....	5797	360	4	1449	90
Nottoway.....	14485	310	10	1448	31
Lee.....	25964	446	18	1442	25
Prince William.....	14417	345	10	1441	34
King George.....	5762	180	4	1440	45
Clarke.....	7165	171	5	1433	34
Hanover.....	18498	512	13	1422	39
Grayson.....	19816	425	14	1415	30
Northampton.....	18397	239	13	1415	18
Mathews.....	8447	94	6	1407	15
Fairfax.....	22967	417	17	1351	25

*Near City.

COUNTY	Population	Area Square Miles	Number of Doctors	Population per Doctor	Area per Doctor
Rockingham.....	36395	876	27	1347	22
Rappahannock.....	8079	274	6	1346	45
Giles.....	12028	369	9	1336	41
Northumberland.....	11860	205	9	1317	22
Pulaski.....	17111	333	13	1316	25
Pittsylvania & Danville.....	81878	1015	63	1299	16
Fauquier.....	21869	666	17	1286	39
Sussex.....	12834	515	10	1283	51
Warren.....	8974	216	7	1282	30
Wise.....	52219	420	41	1272	10
Highland.....	4931	422	4	1232	105
Wythe.....	20217	479	17	1189	28
Frederick.....	20117	435	17	1183	25
Accomac.....	34795	502	32	1179	15
Arlington, including Alexandria.....	37697	32	32	1178	1
Henry.....	21062	444	18	1170	24
Shenandoah.....	20808	510	18	1156	28
Prince Edward.....	14997	356	13	1153	27
Loudoun.....	20577	519	18	1143	29
Nansemond.....	30450	423	27	1127	15
Culpeper.....	13292	384	11	1117	34
Alleghany.....	22229	458	21	1058	21
Albemarle, includ. Charlottesville.....	37121	751	37	1003	20
Montgomery.....	24031	401	24	1001	16
Dinwiddie, including Petersburg.....	53315	521	54	987	9
Warwick and N. N.....	48041	69	50	960	1
Washington, including Bristol.....	39326	604	42	936	14
Bath.....	6389	545	7	912	77
New Kent.....	4541	191	5	908	38
Orange.....	13320	359	15	888	23
Spotsylvania, including Fred- ericksburg.....	16750	413	19	881	21
Augusta, including Staunton.....	46334	1006	54	858	18
Norfolk (County).....	261881	414	334	784	1
Campbell, including Lynchburg.....	58754	557	77	763	7
Roanoke.....	81922	305	128	640	2
Henrico, including Richmond.....	207357	277	395	524	7
VIRGINIA.....	2423942	40262	2206	1098	18.2

The Leslie Dana Medal.

Mr. Leslie Dana, on retiring as chairman of the Missouri Commission for the Blind, in 1925, established a special fund to be utilized by the Missouri State Association for the Blind for the annual purchase of the Leslie Dana Medal for the Prevention of Blindness. In accordance with the terms of the gift, the National Committee for the Prevention of Blindness is to make the annual award under the following conditions:

a. Long meritorious service for the conservation of vision in the prevention and cure of diseases dangerous to eyesight.

b. Research and instructions in ophthalmology and allied subjects.

c. Social service for the control of eye diseases.

d. Special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision.

Nominations will be received by the National Committee for the Prevention of Blindness, 370 Seventh Avenue, New York City, together with detailed information prompting the nomination, until the 15th day of March, 1925.

The medical profession and ophthalmological societies are invited to submit names of persons deemed worthy of this honor under the conditions set forth above.

Child Labor in Canada.

A minimum age of fifteen for permanent gainful employment during the school year is urged for Canadian children by the Canadian Council on Child Welfare. The council also urges prohibition of night work for minors under eighteen and of employment in dangerous or unhealthful occupations of minors under twenty-one and an eight-hour day and forty-four-hour week for minors under eighteen.

Proceedings of Societies

The Southside Virginia Medical Association

Met in South Hill, Va., December 8th, with a good attendance. An unusually good program was presented and all papers were freely discussed. The following officers were elected for 1926: President, Dr. F. C. Rinker, Norfolk; vice-presidents, Drs. Wright Clarkson, Petersburg; Richardson Joyner, Suffolk; W. W. Wilkinson, La Crosse, and William B. McIlwaine, Petersburg. Dr. R. L. Raiford, Sedley, was re-elected secretary-treasurer.

The Home Economics class of the South Hill High School served the visiting doctors a delicious course dinner, consisting of quail on toast and other good things.

The next meeting will be held on the second Tuesday in March.

The Bedford County Medical Society

Held a most interesting called meeting on December 10th, which was largely attended. The particular occasion of this meeting was to hear a lecture by Dr. James F. Cooper, Medical Director of the Clinical Research Department, of the American Birth Control League, who gave a splendid talk on the reasons for birth control. Dr. W. O. McCabe, Thaxton, is president and Dr. J. A. Rucker, Bedford, secretary of this Society.

The Warwick County Medical Society,

At its annual meeting on December 28th, elected Dr. Horace G. Longaker president; Dr. J. E. Marable vice-president, and Dr. Waverly R. Payne secretary-treasurer. This society meets in Newport News on the first and third Mondays.

The Danville Academy of Medicine,

At its annual meeting, elected Dr. W. W. Robertson, of that city, president, and Dr. W. B. Fowlkes, also of Danville, secretary. This society holds monthly meetings on second Tuesdays.

The Loudoun County Medical Society

Held its regular meeting at the home of Dr. J. E. Clagett, at Hamilton, on January 5, at which time papers were read by Dr. J. D. Rogers, of Washington, and Dr. W. O. Bailey,

of Leesburg. Dr. Bailey is president, and Dr. W. C. Orr, of Leesburg, secretary of this Society.

The Arlington County Medical Society,

At its regular meeting in November, elected Dr. Henry A. Hornthal, of Potomac, president, and re-elected Dr. B. H. Swain, of Ballston, secretary-treasurer.

The Richmond Academy of Medicine,

At its annual meeting in this city, December 8, elected Dr. A. Murat Willis president for the ensuing year, and Drs. M. L. Anderson and George C. Woodson vice-presidents. Dr. Mark W. Peyser is the secretary-treasurer.

Book Announcements

The Art and Practice of Medical Writing. By GEORGE H. SIMMONS, M. D., Editor and General Manager Emeritus, American Medical Association, and MORRIS FISHBEIN, M. D., Editor, The Journal of the American Medical Association, Chicago. Press of the American Medical Association, 535 North Dearborn Street, Chicago, 1925. 163 pages. Cloth.

Drs. Simmons and Fishbein are so well known in the medical world for their ability as writers, that it seems only necessary to state that this book is a "gem." It is one which should be in the hands of all authors and publishers. It is practically a post-graduate course in the preparation and editing of articles for medical journals.

Thoracic Surgery. The Surgical Treatment of Thoracic Disease. By HOWARD LILENTHAL, M. D., Professor of Clinical Surgery at Cornell University Medical School; Ex-President of the American Association for Thoracic Surgery, etc. Philadelphia and London. W. B. Saunders Company. 1925. Two Octavo Volumes, totaling 1,294 pages, with 904 illustrations, 13 in colors. Cloth. Price, \$20.00 for the two volumes.

Chemical Pathology. Being a Discussion of General Pathology from the standpoint of the Chemical Processes Involved. By H. GIDEON WELLS, Ph.D., M. D., Professor of Pathology in the University of Chicago, and in the Rush Medical College, Chicago. Fifth Edition. Revised and Reset. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 790 pages. Cloth. Price, \$8.50.

A Text-Book of Medical Diagnosis. By JAMES M. ANDERS, M. D., Professor of Medicine, Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; and L. NAPOLEON BOSTON, M. D., Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. Third Edition, Entirely Reset. Philadelphia and London. W. B. Saunders Company. 1925. Octavo of 1422 pages with 555 illustrations, 21 in colors. Cloth. Price, \$12.00 net.

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Editorial

Gastric Digestion.

The stomach does not digest food completely. The body is unable to use the food as it is when it leaves the stomach. Normal gastric digestion does not contemplate complete digestion. Digestion of food, when completed, is a process of change from alimentary food to blood and lymph food. This transformation is a process of digestion and absorption of food. It takes place in the alimentary tract only after gastric chyme has passed the upper reaches of the intestines. In thinking of gastric digestion one should think of the limitations of the word "digestion" remembering that the stomach has powers of only partial digestion. This partial digestion is brought about through two general processes. These processes are in the nature of a reduction of gross food particles into a fluid state, within a reasonable time, and the prompt ejection of this gastric chyme from the stomach into the gut where it is to be entirely converted, through completed digestion, into elements susceptible to absorption into blood and lymph channels.

Complementary to the treatment of the gastric secretory function, the food in the stomach relies upon the two-way motor function of the stomach. Here time is an important consideration. If the food is expelled by motor function too soon from the stomach, or if it is retained too long in the stomach through insufficient motor action, impaired digestion is the result. This may show itself, if of such a degree of severity, in a train of easily recognized symptoms. These symptoms may be of

a gastric nature or they may be of an intestinal nature, or, probably, a combination of symptoms emanating from the stomach, intestinal tract, and other systems or regions of the body.

It is, hence, interesting to think of the elementary principles of the physiology of this organ and to recall some of the common sense aspects of problems involved in ordinary complaints of patients. Dyspepsia, so called, acute indigestion, upset stomach, disordered stomach, and like terms are expressions so frequently used by patients that it is a good idea to think of the work of the stomach in its daily duty of taking care of the foodstuffs introduced into it.

In connection with this we may look to the work of Martin E. Rehfuess who has done much to set us right on the stomach's part in digestion, and on the effect of certain foods upon the evacuation time of the stomach. Under the title "Normal Gastric Digestion," *J. A. M. A.*, Vol. 85, No. 21, page 1,599, one may find an interesting summary of present-day knowledge of gastric digestion. Until we get something better we may agree upon this as a fair statement of what we know "as of today."

Rehfuess succinctly gives his view in the following paragraphs:

"1. The whole tendency of gastric digestion is to produce fine comminution, or to translate a mass of heterogeneous substances into a more or less homogeneous mass. In a very different way, Meunier has attempted to demonstrate by means of cryoscopic index that the gastric contents are reduced to a certain optimum at which place active evacuation occurs. It is evident, therefore, that with the greatest diversity of foodstuffs the whole tendency of gastric digestion is to reduce them to a state of fine comminution and homogeneity.

"2. The stomach is undoubtedly a buffer or sentinel to the most deeply placed portions of the gastrointestinal tract; namely, the small bowel and the accessory organs of digestion, the liver and pancreas. It is in this portion that the true digestion and absorption of food occur.

"3. The stomach is a 'turnstile,' or, rather, the pylorus is the 'turnstile' for the entrance of food into the true digestive tract; and on the efficiency of this mechanism depends the decision as to whether material shall pass into the lower tract.

"4. The stomach shows an extraordinary adaptability to every variety of foodstuffs and, in my judgment, a selective activity to all varieties of food. In view of the great diversity of food products, representing practically every variety of animal and vegetable life, it is apparent that this little organ does an amount of true mechanical work that can only be appreciated when the whole series of foodstuffs are studied in their transition from their natural state to chyme. This was our work in studying the phenomena of normal digestion at Jefferson over a period of more than eight years, re-

garding the gastric digestibility of every variety of foodstuff. These studies emphasize more than anything else the extraordinary resilience and adaptability of the normal stomach in health, and associated studies have emphasized the intolerance of the stomach as probably the first evidence of disease."

RATE OF GASTRIC DIGESTION

It seems from Rehfuß' studies that stomachs vary nominally in rate of evacuation and degree of acidity. Stomachs vary in gastric function in health. There is a normal "fast" and a normal "slow" stomach, measured by the evacuation time. The normally "fast" stomach becomes sick when it becomes a "slow" stomach, and the normally "slow" stomach may kick up symptoms when it becomes "fast" or too "slow." Rehfuß shows that normal fast stomachs "*digest*" beets, raw cabbage and lettuce in a little over an hour, turnips and asparagus in an hour and a half; raw carrots, creamed celery, plain cucumbers and string beans, in between one and one-half and two hours; eggs, bread, and cereals, around two hours; hamburger steak, minced ham and medium roast beef in two and one-quarter hours; lamb chops, roast beef, scrambled eggs and omelet in two and one-half hours; roast lamb, pork, in between two and three-quarters and three hours; liver, bacon, sirloin steak and ham bologna in a little over three hours.

The normal slow stomach shows a longer evacuation time on all foodstuffs, but all foods, in normal stomach, are evacuated before six hours; in other words, there is no actual six hour retention in all foods of moderate quantity in the normal stomach.

The observations of the secretory function are also interesting in this connection. Rehfuß found in 929 cases, that 91.5 per cent showed that fish gave an acidity of 100 or over; 76 per cent of meat preparation, 44 per cent of milk and cream preparation, 39 per cent of pies, puddings, and pastry and only 7.3 per cent of bread and cereal responses were in excess of 100.

It seems clear that in health there is a wide range of variation in secretory and motor function. In the presence of gastric symptoms the evaluation of the power of gastric function, must be made with this in mind.

INVESTIGATION OF THE ABNORMAL STOMACH

In view of the frequency of "stomach trouble" as a cause of sickness and disability, and of the evident importance of the part played by

the stomach in the preparation and partial digestion of the food for the ultimate use of the body, comment upon investigation of gastric function may be made here.

In all cases of "stomach trouble" careful history taking and physical examination assumes paramount importance. Careful inquiry into the habits of the patient, the food, the time, the environment, and other obvious conditions of feeding are indicated. One may find this inquiry tedious, but it is fruitful in the leads it offers. The physical examination of "stomach cases" is also important and should be conducted with great care.

But to gastric analysis and the roentgen-ray we must turn for the most useful and accurate means of investigation into abnormalities of gastric function. Rehfuß cogently observes that "gastric analysis is a physiologic study of gastric work; it is an attempt to throw light on gastric function. Many observers see in it no other purpose than a determination of the acid values, when in truth the determination of acid values is but a single evidence of one of the mucosal functions." Gastric function is combined secretory and motor work; a chemical determination of its workings is only one of the factors of function. Gastric analysis for diagnostic purposes is conducted as an inquiry into the behavior of the motor function as well as the secretory function during the course of a standardized meal of simple food. It attempts to throw light upon chymification and food evacuation, upon pyloric function, and gastric retention.

The roentgen-ray gives the anatomic evidence in diagnosis of stomach disease. The X-ray study of the stomach, where symptoms and gastric analysis indicate its use, is employed to determine the form, size, position and alterations in the stomach; not to speak of peristaltic action and evacuation time.

In the use of all diagnostic methods one must remember the variations of the normal stomach and the evidence received must be thrown against the background of symptomatology and history of the case under investigation. One must remember also that the acid curves and the evacuating time of the stomach being studied should be interpreted in the light of the test meal use, the preparation and environment, the pathologic conditions, mucus, blood and bile. By means of fractional gastric,

sampling of the contents of a stomach as it works itself through the phases of gastric digestion, especially in the face of self-asserting symptoms from the stomach, one may secure valuable evidence in diagnosis. The chemical study of samples of gastric chyme during stomach digestion, with a breakfast of simple nature; the period of time required for the stomach to evacuate the meal, the nature of the content secured in the fractional tapplings, all enter into the inquiry as to the cause and nature of the gastric complaint. Fractional gastric examination is an attempt to measure the ability of the organ to function or to find out wherein it fails in its function, besides getting sidelights for additional study.

Heart Sounds.

Every practitioner is interested in the heart sounds. Auscultation first seeks the heart sounds. Heart murmurs must be given the "deaf ear," until one has "listened in" on the heart sounds. The heart sounds are signals of heart function. The first and second sounds of the heart stand out as "fixed points." The making of the heart sounds and the time relation of the heart sounds, the quality and nature of the heart sounds, the auscultation and suppression of the heart sounds, the relation of murmur to the heart sounds, are all important considerations.

The two heart sounds mark the beginning and the ending of ventricular systole. This fact should be remembered as one "listens-in" on the heart. The first sound, beginning with the closure of the auriculo-ventricular valves, the tightening of the valve cords and contraction of ventricular walls, is deeper in pitch and longer than the second sound in duration. The second sound, occurring with the completion of ventricular systole, is at a higher pitch and of a shorter duration and is created by vibrations occurring in the closure of the semilunar valves. The first sound is truly systolic in time and the second sound is diastolic. A third heart sound has been noted (Thayer). It is described as "softer and of a lower pitch" than the second sound and is heard just after the second sound. It occurs only in diastole and it is thought to be due to a vibration of the auriculo-ventricular valves, caused by the sudden in-rush of blood from the auricles at the beginning of the diastole, occurring 0.13 seconds after the beginning of the second

sound. One should remember that the two sides of the heart acting synchronously make up the heart sounds; although re-duplication of the elements of the sounds are occasioned by disassociation of left and right contraction.

Abnormal sounds of heart sounds should be understood or interpreted by physicians by means of auscultation. One remembering the nature, quality, time relation, and position of best interpretation of normal heart sounds is enabled the better to evaluate abnormal heart sounds and to ascribe to changes of quality, intensity, rate, and intermissions, associations with other sounds in or about the heart, a truer meaning. Diminution of the intensity of the first sound at the base is to be considered as a sign of heart weakness or myocardial weakness, especially if the heart is beating fast; while increase of the intensity of the first sound, at the apex, if pronounced, may be taken as a sign of mitral stenosis, if other signs are confirmatory. The second sound accentuation is also interesting. The accentuation of aortic second sound indicates aortic changes. These aortic changes may be due to tension on valves, in sclerosis and hypertension; also at the second pulmonic, the accentuation may be of interest in pneumonia, chronic diseases of the lungs, or pleura. The suppression or the diminution of heart sounds may come about by organic lesions at the valves, or myocardial degeneration, or accumulation of fluid in the sacs about the heart.

The quality or timbre of heart sounds should also engage the interest of the practitioner. This changing of heart sounds as to quality is especially exemplified during the course of endocarditis. Muffling is a common quality of heart sounds in endocarditis; this may appear suddenly, may appear and then disappear, or may fade into and become a heart murmur. After every case of acute infection, particularly of the rheumatic type, heart sounds should be studied daily for the first evidence of muffling. No patient should be permitted to arise from bed after tonsillitis or rheumatic fever, for example, without a careful study of heart sounds.

Reduplication of heart sounds, also, gives to the examiner a problem for interpretation in cardiac function. The doubling of the first sound is almost always significant of important pathological changes in the heart. The pre-

ponderance of right over left ventricular action, or the disorder of conduction in the bundle of His, the dilatation of heart muscle, may be linked up in the observation of reduplication of the first heart sound. Likewise with the doubling of second sound, one may infer that there is a disassociation of the two elements which make up the second sound.

HEART MURMUR

Laennec, 1819, according to Vaquez, believed that these sounds were always caused by valvular lesions. Now we recognize murmurs in the examination of the heart which are not due to organic lesions of the valves. Organic murmurs are caused by chronic lesions of the valves, or an abnormal opening between cavities of the heart. For instance, a systolic murmur at the base in the second right intercostal space indicates an aortic stenosis. This lesion is calculated to transmit this murmur along the course of the vessel of the neck. Now, if one hears a diastolic murmur in the second interspace on the right side, aortic insufficiency may be interpreted. Although the same lesion may give a diastolic murmur behind the sternum at the level of the third rib; it is transmitted downward to the apex.

One should not forget that a double murmur denoting an insufficiency and a stenosis, at the valve, may be heard partaking of a diastolic and systolic quality. In such a double lesion, as one runs the stethoscope downward to the zypoid, the quality of the diastolic murmur increases and that of the systolic diminishes in aortic insufficiency and stenosis combined.

Always at the apex a systolic murmur, transmitted to the left, denotes mitral insufficiency. The diastolic murmur of mitral stenosis is heard along the left border of the sternum about the fourth rib. These illustrate the left side lesions of the heart which give forth murmurs. The heart functions can not be judged by heart murmurs.

Functional murmurs arise in mechanics in very much the same way as organ murmurs but from an entirely different cause. The pathogenesis of functional heart murmurs is entirely different from that of organic heart murmurs, but function murmurs are due to insufficiency.

Periodic Physical Examination.

In order to put across this important program in preventive medicine, medical organizations should begin the education of the public by means of newspapers, magazines, circulars, placards, and radio, as to the advantages and benefits to be derived.

Assuming that the profession is ready to make satisfactory examinations, the next step is to secure the widespread adoption of the plan by the laity.

The profession in its organizations must assume the responsibility of saying that its members are prepared to perform this public service. The members of societies should "take a course" in standard physical examinations in order to attain a proper degree of aptness, proficiency, skill, and thoroughness, that makes an examiner of this sort "a specialist."

The so-called "health examination" goes far afield in physical inquiry. To examine an infant, one needs some special study; to examine a child, one needs also some special study; to examine a youth, male or female, one requires some special knowledge; to examine a middle-aged man or woman—or old men or women—likewise demands some special knowledge not required in other grades of life or other classes of examination. The interrogatory parts of these examinations are very different in requirements and uses. The whole question of examination of persons—whether infant, youth, middle age or old age subjects—needs to be gone into systematically by doctors proposing to perform this new service for the public. General practitioners must become "specialists" in the *periodic health examinations*.

Read Surgeon-General Cumming's paper on the subject of periodic physical examinations which appears as the leading article of this issue of the *Monthly*. This is a live subject and opens up a new and important field of effort in preventive medicine as well as in the ordinary practice of medicine.

If the general practitioner or family physician will see the big opportunity which the program offers for usefulness, as well as for increased professional advantage, he will join in supporting the new movement which is assuming telling proportions in preventive medicine throughout the country.

News Notes

1926 Program of the Gorgas Memorial.

The Gorgas Memorial purposes to make 1926 Health Conservation Year, during which an intensive campaign through the newspapers, magazines, radio, moving pictures, clubs and other gatherings will be conducted to promote an interest in better personal health. Every citizen in the United States will be urged to set aside one day during the year—preferably his birthday—to go to his personal physician and have a health examination.

A national mosquito abatement campaign will be conducted, in which the public will be urged to co-operate with all health agencies in eradicating disease-carrying and pestiferous mosquitoes.

Arrangements are being negotiated to begin the tropical research program during 1926. The work will be conducted in laboratories, the use of which has been tendered the Institute, pending the construction of its own building.

Co-operation between the public and scientific medicine will be encouraged, and a public opinion receptive to proper health instruction developed.

Organization of State Governing Committees will be steadily extended and every effort put forth to complete the committee membership quotas as rapidly as possible. Our present members are asked to aid in this direction by interesting their associates and other representative medical and laymen and women in the Memorial, and urging them to enroll in the State Governing Committee.

The American Congress on Internal Medicine

Will hold its tenth annual meeting at Detroit and Ann Arbor, Mich., the week of February 22-27, 1926, under the presidency of Dr. C. G. Jennings, of Detroit.

The Congress is devoted to amphitheatre, bedside and clinical laboratory demonstrations as well as to symposia dealing with modern phases of internal medicine. Distinguished guests from abroad, Canada and the leading clinics of the United States will occupy prominent places on the program. Four days will be devoted to the work at Detroit and on one day, the society will be the guest of the University of Michigan at the newly opened eleven hundred bed University Hospital.

All physicians, who are interested in internal medicine and who are members in good standing of their local and national societies are cordially invited to attend the Congress.

Hotel headquarters will be at the Book-Cadillac, in Detroit. Information regarding reduced railroad rates, program, hotel accommodations, etc., may be secured from the Secretary-General, Frank Smithies, M. D., 920 N. Michigan Avenue, Chicago, Ill.

The Tri-State Medical Association of the Carolinas and Virginia

Is to hold its annual meeting in Fayetteville, N. C., February 16th and 17th, with headquarters at the Prince Charles Hotel. These meetings are always interesting and pleasant and the usual good attendance is expected this year. Dr. F. H. McLeod, Florence, S. C., is president, and Dr. James K. Hall, Richmond, Va., secretary.

Married.

Dr. Frank McConnell Leech, Lexington, Va., and Miss Bess McDowell Dunlap, of Kerrs Creek, Va., December 29th.

Dr. Osbourne O. Ashworth, Richmond, Va., and Miss Mary Wells Knight, of Plant City, Fla., December 16th.

Dr. Paul Crenshaw Colonna, of New York City, but a former Virginian, and Miss Frances Pierpont Isham, of New York and Vermont, September 5, 1925.

Dr. Thomas Ruffin Pratt, Jr., Blue Ridge Sanatorium, Charlottesville, Va., and Miss Lula Emma Jackson, University, Va.

Dr. Joseph Hamilton Smith, Edwright, W. Va., of the class of '21, University of Virginia, and Miss Hester Jane McLarren, Osceola Mills, Pa., September 9th.

Dr. Albert A. Cannaday and Miss Claudine Marie Day, both of Roanoke, Va., October 24.

General Education Board Makes Appropriation to University of Virginia Medical School.

An appropriation of \$700,000, by the General Education Board, of New York, to University of Virginia Medical School, was announced at a faculty meeting on December 8th, by President Edwin A. Alderman. This sum was appropriated for the purpose of erecting buildings and providing equipment for the housing of the medical sciences at the University of Virginia and for properly relating those sciences to the hospital and clinical services

already at that Institution. This sum was appropriated toward a total of \$1,400,000 adjudged necessary to carry forward the whole program of construction after consultation with Charles A. Coolidge, of Boston, America's foremost architect in this field.

It was further announced that an additional sum of \$450,000 would be raised by the University, making a total of \$1,150,000. The State of Virginia would then be asked to complete the amount required by legislative appropriation of \$250,000. This amount—just over one-sixth of the total amount—was the key to the whole big undertaking, for without such legislative action the \$700,000, from the General Education Board and the \$450,000, by private gift, it would be impossible to secure, unless the State is willing to do this relatively small part. It is thought that the State will unquestionably make the appropriation in the interests of its own welfare for the promotion of public health and medical science, and for the purpose of placing the medical department of the University in line with the developments in medicine and in company of the great modern medical schools of America.

Dr. and Mrs. H. L. Burwell

Have returned to their home in Chase City, Va., after a visit to friends in Roanoke, Va.

Recent Visitors to Richmond.

The following are among the Virginia doctors recently noted in Richmond: Drs. Charles F. Graham, Wytheville; Dr. Percy Harris, Scottsville; Dr. I. K. Redd, Atlee; Dr. W. Massie Tunstall, Lovingsston; Dr. T. N. Davis, Jr., Lynchburg; Dr. C. E. Peyton, Pulaski; Dr. Rachael F. Weems, Harrisonburg.

The Congress on Medical Education, Licensure, Hospitals and Public Health

Will hold its annual meeting at Congress Hotel, Chicago, February 15th, 16th, 17th and 18th, a month earlier than usual. An interesting program is being planned on the various subjects.

Dr. N. W. File,

Of Lynchburg, Va., spent the holidays with his parents at Ransons, Va.

Dr. F. X. Schuller,

Of the class of '15, Medical College of Virginia, formerly of Hiawatha, W. Va., is now practicing in Huntington, W. Va., with offices at 2544 Eighth Avenue.

Members of Medical College of Virginia Staff.

At the last meeting of the Board of Visitors of the Medical College of Virginia, Richmond, Dr. Dean B. Cole was appointed associate in medicine, and Dr. P. E. Schools, Dr. Powell Williams and Dr. W. T. Vaughan were appointed instructors in medicine.

Posture Standards Shown by Charts.

The Children's Bureau of the U. S. Department of Labor will shortly issue a set of six charts on posture standards for boys and girls, intended for the use of physicians, nurses, physical education teachers, and clinics. Three types of figures are shown for both boys and girls—the thin, the intermediate, and the stocky. Each chart shows four silhouette figures illustrating excellent, good, poor and bad posture for the respective types of boys or girls.

Each chart is approximately 24x34 inches. A limited number are available for free distribution; others may be secured from the Government Printing Office, Washington, D. C., at 50 cents for the set of six, or 25 cents for the set of three charts on girls or the set on boys.

Dr. Stephen H. Watts

Has resumed his work as professor of surgery and gynecology at the University of Virginia, after a visit of three months in Europe.

Plan for Holding Orthopedic Clinics.

Late in December a number of orthopedic surgeons met with Governor Trinkle and State Health Commissioner Williams for the purpose of discussing ways and means for extending orthopedic work in Virginia. The following committee was appointed to draft plans for the holding of orthopedic clinics in the State of Virginia; Dr. Ennion G. Williams, chairman; Dr. W. L. Harris, Norfolk; Dr. J. C. Flippin, of the University of Virginia, Medical School; Dr. W. T. Sanger, of the Medical College of Virginia; Dr. Allen Voshell, University; Dr. J. T. Mastin, of the State Department of Public Welfare; and Mr. D. M. Blankenship, of the Rehabilitation Board.

Dr. W. J. Wigington,

Of Java, Va., left early in January for a business trip of several weeks to Miami, Fla.

Dr. Fred M. Hodges,

Richmond, was appointed chairman of the Section on Radiology of the Southern Medical

Association for the coming year, at its recent meeting in Dallas, Texas.

Dr. Isaac A. Abt,

Chicago, announces that he has been appointed attending physician in diseases of children at St. Luke's Hospital, that city. He entered upon active service there the first of this year.

Dr. David T. Gochenour,

Stuarts Draft, Va., was recently elected a member of the Board of Trustees of Bridgewater College, at Bridgewater, Va.

Dr. Watson Rankin,

Of Raleigh, moved to Charlotte, N. C., the first of this year, where he has established headquarters for his work as director of the Hospitalization and Orphanage sections of the Duke Endowment.

Dr. F. M. Hisey,

Edinburg, Va., has returned home, after spending several weeks at Winchester Memorial Hospital, where he was under treatment.

Dr. J. B. Hackley

And family, of Purcellville, Va., visited friends in Culpeper, Va., last month.

Dr. George H. Sread,

Of Lexington, Va., spent the holidays at his former home in Fork Union, Va.

The Southern Surgical Association

Held the largest meeting in its history in Louisville, Ky., December 15th, 16th and 17th, under the presidency of Dr. Irvin Abell, of Louisville. It was decided to hold the 1926 meeting in Biloxi, Miss., about the middle of December. Dr. H. A. Royster, Raleigh, N. C., for many years secretary of the Society, was elected its president; Drs. Louis Frank, of Louisville, and Frank K. Boland, of Atlanta, Ga., vice-presidents; Dr. R. L. Payne, Norfolk, Va., secretary; and Dr. Urban Maes, New Orleans, treasurer.

Clinic on Wheels, Los Angeles.

A complete clinic on wheels is the latest addition to the equipment of the department of health of the Los Angeles Board of Education. The clinic is provided with complete sets of optometrists' and dentists' fixtures, thus eliminating the expense of furnishing these sets for the separate schools. By use of the movable clinic, two physicians and one nurse can look after the welfare of many children each day.

Children in Moving Picture Studios.

Recent inquiries of the International Labor Office about the employment of children in motion pictures in various countries show the following facts: France has no special legislation regulating the employment of children in this industry, but provisions of the general labor code apply; in Switzerland, the cinema industry does not exist; in Germany an amendment to the child-labor law is proposed to cover the taking of public and private moving-picture films, and Berlin already has municipal regulations on this subject; in Great Britain there is no special legislation affecting children in such work and such employment is not common, but certain provisions of the Education Act restrict the employment of children under fourteen and give local authorities power to make by-laws prohibiting the employment of children in any specified occupation or regulating their employment generally; in the United States, the industry is concentrated chiefly in California and New York, where permits are required for the employment of children at this work.

Honor Dr. Dean Lewis.

A dinner has been arranged for January 22, in honor of Dr. Dean Lewis, recently appointed professor of surgery at Johns Hopkins University, and surgeon-in-chief to the Johns Hopkins Hospital, Baltimore. Surgical alumni of that school and a number of prominent surgeons have been invited and a series of clinics will be held. It is probable that a movement will be started at this time looking to the organization of a society to be known as the Johns Hopkins Surgical Society.

Dr. George M. Kober,

Washington, D. C., was re-elected president of the Washington Tuberculosis Association, at its annual meeting, held recently.

Dr. A. H. Deekens

Has just returned to his home in Richmond, after a visit to Florida.

Dr. Henry T. Miller,

Formerly of Staunton, Va., but for the past few years of Washington, D. C., has moved his offices to the new Washington Medical Building, 1801 Eye Street, Northwest, where he will continue the practice of ear, nose and throat work.

The District of Columbia Medical Society,

At its annual meeting in Washington, De-

cember 2, elected the following officers for the ensuing year: President, Dr. Joseph S. Wall; vice-presidents, Dr. Charles S. White and Dr. Amelia Frances Foye; delegate to the American Medical Association, Dr. William Gerry Morgan; secretary-treasurer, Dr. Coursen B. Conklin, re-elected.

The National Committee for the Prevention of Blindness,

At its annual meeting in New York City, November 30 to December 5, inclusive, had a program which was divided into several sections in which were discussed many matters in relation to the conservation of vision.

At the director's meeting, Dr. William H. Wilmer, director of the William Holland Wilmer Foundation, Johns Hopkins University, pointed out that, although the activities of the National Committee had been responsible for cutting down birth infections causing blindness some fifty per cent, there was yet much to be done. As a result of Dr. Wilmer's address, a resolution was adopted appealing to Congress, in behalf of the 14,500 persons represented in this organization, for better support of the national bureaus striving to eliminate trachoma.

Dr. W. W. Buck,

Formerly of Rural Retreat, Va., has been appointed an assistant physician at the Western State Hospital, Staunton, Va., and has entered upon his duties there.

Dr. Kon Wyatt,

Recently of Fordwick, Va., has moved to Canon City, Colorado, where he is continuing the practice of his profession.

Principal Causes of Death in 1924.

In the death registration area of the United States there were reported 1,173,990 deaths during the year 1924, which gave a death rate of 11.9 per 1,000 population as compared with 12.3 in 1923. Nearly three-fourths of the decrease in 1924 is caused by the decrease in number of deaths from influenza and pneumonia. Slight increases were shown over 1923 in the death rates from diseases of the heart, cancer, and automobile accidents.

Dr. Lucy S. Hill,

Of the class of '24, Medical College of Virginia, who recently completed an internship at St. Elizabeth's Hospital, Washington, D. C., has been appointed a member of the staff of the bureau of child hygiene, infancy and ma-

ternity division of the Louisiana State Board of Health.

Dr. J. B. Harvie Waring,

Blanchester, Ohio, has been elected post commander of Marion Post No. 179, American Legion of Ohio, for the year 1926. Dr. Waring has also been invited to address the Eye, Ear, Nose and Throat Section of the Ohio State Medical Association at its coming meeting in Toledo, Ohio, on "Modern Tonsillectomy Methods."

Dr. J. Shelton Horsley,

Richmond, addressed the Wayne County Medical Society in Detroit, Mich., December 21, his subject being "Biologic Principles Underlying Gastric Surgery."

Dr. Robley R. Goad,

Of the class of '25, Medical College of Virginia, after a short time at St. Francis Hospital, Jersey City, N. J., is at present at Richlands, Va.

Dr. Charles E. Dyer,

Who for the past three and a half years has been located at Jewell Ridge, Va., as physician and surgeon to Junu Ridge Coal Corporation, has resumed private practice at his old home in Pulaski, Va.

Dr. Dyer was succeeded at Jewell Ridge by Dr. A. M. Largey, a graduate of the University of Pennsylvania.

Annual Report of U. S. Public Health Service.

Surgeon General Cumming, in his annual report of the U. S. Public Health Service, for the fiscal year ending June 30, 1925, urges the maintenance of the present high standards in public health work. Preliminary figures indicate a total death rate for the United States for the calendar year 1924 of about 11.9 per 1,000 as compared with 12.4 for the previous year. While infant mortality has shown an appreciable decrease, the number of deaths of mothers incident to childbirth has shown little change for the last nine years. The death rate from the operation of automobiles has risen from less than one per 100,000 in 1906, to nearly fifteen per 100,000 in 1923. Reports show a large number of persons killed and injured as result of Fourth of July celebrations. Heart disease ranks first in the United States as a cause of death, and influenza and pneumonia holds the second place. Diphtheria death rate has shown a striking decrease.

Many experiments have been carried on in the interest of health work and the service has been especially active in its work along preventive lines. An important event in the field of international health relations was the signing of the Pan-American Sanitary Code by eighteen of the American republics at Havana. This pact provides for the collection and distribution of information concerning the prevalence of communicable diseases and prescribes and standardizes the measures necessary to prevent their transmission from one country to another.

"Frozen Endowments."

Physicians and surgeons of New York and the nation have joined forces against "frozen endowments"—funds permanently dedicated to restricted objects and endangered by obsolescence as those particular purposes become antiquated. It is urged by this group that endowments for medical research, treatment or education, be kept free from narrow limitations and rigid conditions, so that the purpose of the giver may not be defeated by changing times. In New York, a Community Trust has been formed. Various financial institutions agree to invest and hold the principal of endowments but to disburse the income only as directed by a central Distribution Committee. This committee executes the wishes of the original founders, and has power to effect such amendments in the provisions of the grant as may be made advisable by unforeseen changes in conditions.

This Community Trust idea seems a most excellent arrangement for handling large bequests and endowments, that they may not become "frozen."

Dr. Frank P. Brammer,

Formerly of Callaway, Va., is now located at Christiansburg, Va.

Dr. H. L. Mitchell,

Lately of Danville, Va., has located in Lexington, Va., where he is specializing in diseases of the eye, ear, nose and throat. Dr. Mitchell returned to this State the first of last year after doing special work at the Episcopal Eye, Ear and Throat Hospital, in Washington, D. C.

Healthy Recreation as the Enemy of Venereal Disease.

The British Government has become fully alive to the gravity of the problem of the

venereal diseases and to the importance of doing everything possible for the improvement of the public health in this respect. This is evidenced by the Government's changed attitude of apparently hushing up the evil as late as 1911 to the spending of nearly 400,000 pounds in 1924 in improving the health of the country through venereal disease control measures.

The Surgeon Commander, of the British Navy, as a means of reducing the number of sick days in the British Navy from venereal diseases, insists that everything possible should be done to provide healthy recreation for seamen on leave.

The Church Hill Medical Society,

A local medical society of Richmond, Va., at a recent meeting, elected Dr. J. W. Hannabass president for the coming year; Dr. W. H. Whitmore, vice-president; Dr. R. S. Faris, secretary-treasurer; and Dr. M. L. Boyle, reporter. At this meeting, Dr. B. M. Rosebro, of Richmond, read an interesting paper. Following the business meeting, the members were entertained by Dr. J. Gordon Boisseau at whose office the meeting was held.

Dr. Robert Spilman

Has returned to his post as medical adviser at the Virginia Military Institute, Lexington, after a sick leave of several weeks.

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for the following: Trained nurse and trained nurse (psychiatric), receipt of applications to close January 30; physiotherapy aide, physiotherapy pupil aide, and physiotherapy assistant, receipt of applications to close January 9th, February 13th, March 13th, April 17th, and May 15th; dietitian and also occupational therapy aide and occupational therapy pupil aide, applications for these to be rated as received until June 30th.

Orthopaedic Clinics in North Carolina.

The State Department of Vocational Rehabilitation, Raleigh, N. C., has established Orthopaedic Clinics over that state for the purpose of caring for the indigent cripple. Dr. Alonzo Myers, Orthopaedic Surgeon, of Charlotte, N. C., is in charge. Clinics have been established at Fayetteville and Charlotte, N. C., and 151 cases have been examined.

Dr. Stuart Michaux.

Richmond, Va., spent sometime in December in attending the Mayo Clinic, Rochester, Minn.

Dr. Goodlatte B. Gilmore,

Formerly of Norfolk, Va., after a post-graduate course in New York City, has located at 2940 Grand Concourse, that place, and will limit his practice to diseases of the ear, nose and throat, with hospital appointments at the Post-Graduate, Department of Otology, and at the Bronx Eye and Ear Infirmary.

Dr. and Mrs. J. C. Blanton

Returned to their home just outside of Richmond, the middle of December, after a visit to New York City.

Dr. Ernest M. Wilkinson,

Of the class of '23, Medical College of Virginia, after practicing for a time at Dan, W. Va., has moved to Welch, W. Va., where he is associated with Dr. H. G. Camper.

West Virginia in the Birth-Registration Area.

West Virginia is in the 1925 birth and death-registration area of the United States, the Census Bureau announces. The birth-registration area now includes thirty-three States and the death-registration area forty-one.

Child Labor Draft Conventions.

Chile and the Irish Free State have ratified several of the child labor draft conventions of the International Labor Conference. Chile is the first Latin-American country to ratify. The conventions provide, among other things, that no child under fourteen shall enter industry and that no child under eighteen shall do industrial work at night.

Tuberculosis Campaign, Switzerland.

Switzerland plans a campaign against tuberculosis, especially against the disease in children. Medical supervision over tubercular persons, welfare stations, and colonies for children suspected of the disease are included in the plans.

Annual Report of Surgeon General of U. N. Navy.

The report of Surgeon General Stitt for the fiscal year 1924, indicates that there were fewer admissions to the sick list and less disability from sickness in the Navy that year than in any year since the World War. Venereal diseases were responsible for a large part of the disability caused by all classes of disease, especially in the case of ships, which were for long periods of time in Chinese and other foreign

ports. The annual physical examination of officers, the first to be held under the new plan, served to detect many early defects among those examined and made it possible to suggest remedies looking to their correction.

Dr. Harry F. White,

Fishersville, Va., narrowly escaped serious accident, the middle of December, when he was thrown from his automobile. The sudden explosion of a tire while the car was in motion, caused Dr. White to lose control of the car, which subsequently upset. While suffering acutely from shock and bruises, Dr. White was not otherwise hurt.

Dr. Homer S. Henkel

Has resumed his practice in Staunton, Va., after an absence of several months on account of illness.

The Physicians' Home.

The campaign still continues for funds for that most worthy cause—the Physician's Home. A statement recently issued by the committee in charge of this enterprise stresses especially the gratuitous service rendered by physicians, either through their voluntary service or through clients failing to pay the doctors' bills. The Physicians' Home has been established as a home to which a physician and his wife may retire when health fails, so that the doctor is not able to keep up his work and he has nothing stored up with which to help in old age.

If you will make a contribution to the establishment of this home, your check should be drawn to the order of the Physicians' Home, Inc., and mailed to Dr. Albert G. Weed, Treasurer, 22nd Floor, Times Building, Broadway and 42nd Street, New York City.

Ensworth Medical College Alumni Organize.

The Alumni Association of Ensworth Medical College was formed in Kansas City, Mo., in October, with a membership of forty-three. Dr. Charles Geiger, of St. Joseph, Mo., was elected president, and Dr. Chas. Wood Fassett, 115 East Thirty-first Street, Kansas City, Mo., secretary. It is desired to enroll all graduates of Northwestern, Central and Ensworth Medical Colleges. Dues are \$1.00 a year. Graduates of all three schools are urged to send their names to the secretary for enrollment at once, as it is hoped to have an attendance of one hundred at the meeting next fall.

The Association of Seaboard Air Line Railway Surgeons

Held its twenty-second annual meeting in St. Petersburg, Fla., December 1, 2 and 3. There was an attendance of over 150 at this meeting. Dr. Joseph M. Burke, Petersburg, Va., is chief surgeon. He acted as toastmaster at the banquet tendered the members, their wives and friends, at which talks were given by several officials and surgeons. The banquet was one of the most brilliant social affairs in the history of the organization. Business sessions were held the first day and the rest of the time was given to sight-seeing and entertainments. At the scientific session, the *International Journal of Surgery*, as is its custom, awarded three prizes for the best papers presented. The first of these went to Dr. H. Aulick Burke, Petersburg, Va., for his paper on "Gas Gangrene."

Dr. W. T. Graham, Richmond, Va., was elected president of the Association; Drs. T. J. McArthur, Cordelia, Ga., Ralph Green, Jacksonville, Fla., J. E. Rawls, Suffolk, Va., vice-presidents, and Dr. J. W. Corbett, Camden, S. C., member of the executive committee. Havana, Cuba, was selected as the 1926 place of meeting.

Dr. Ruth Mason,

Of Stony Creek, Va., of the class of '25, University of Virginia Medical School, after several months at Metropolitan Hospital, New York City, is now a resident physician at Petersburg Hospital, Petersburg, Va.

Dr. R. T. Akers,

Alum Ridge, Va., was elected chairman of the Floyd County School Board, at its meeting held last month.

Dr. Chester E. Haberlin,

Of the class of '24, Medical College of Virginia, has just completed a year's internship at Metropolitan Hospital, New York City, and has been appointed night surgeon to the Emergency Hospital of the City of Bridgeport, Conn., his home town. He has opened an office at 324 Carroll Avenue, that city, for private practice during the day.

Dr. J. M. Holloway,

For some time of Port Royal, Va., having recently completed a course at the graduate school of medicine, University of Pennsylvania, has located in Fredericksburg, Va., with offices at 305 George Street.

Rabies Apparently on Slight Increase.

In view of a slight increase in the number of cases of rabies reported in Virginia, for the November-December period, the State Board of Health advises that when a person is bitten, the dog need not necessarily be killed, but should be tied up. If it has rabies, it will die within a few days. Antirabic treatment may be instituted without waiting to know the fate of the dog, and especially should this be done, if the person is bitten about the head or neck, as the nearer the bite is to the brain, the sooner will rabies develop.

Antirabic treatments are kept at all times at the State Laboratory, in Richmond, Harrisonburg and Norton. Should the dog die or be killed, the dog's head should be sent at once to the nearest State Laboratory for examination. If the dog lives or the head shows no rabies, the antirabic treatment may be discontinued after the first series is taken.

Dr. Prichard Hurt in Accident.

As a result of his automobile being struck and demolished at a railroad crossing in the snow storm on the night of January 8th, Dr. W. I. Prichard, of Petersburg, Va., is in the Petersburg Hospital with a broken leg and suffering from bruises and cuts. His escape from death is considered miraculous.

Southside Community Hospital.

Residents of Farmville, Va., and vicinity held a drive from January 8th to the 13th, to raise \$60,000—one-third of the cost of the building and equipment of this 50-bed modern hospital. The Commonwealth Fund of New York will pay \$120,000 for this, their first rural hospital which is given as part of their general plan for medical health education. Provision has been made for maintaining the hospital when completed.

For Sale or For Rent.

Because of the untimely death of Dr. George T. Divers, the St. Martin's Hospital, Stuart, Virginia, offers an excellent opportunity for some doctor and surgeon.

The building has all modern equipment, steam heat, electric lights and water, beautiful grounds, adequate room for forty patients, rooms with or without bath. It is located near the corporate limits of the town of Stuart, in one of the most beautiful and healthy sections of the Blue Ridge. Fire-proof building erected in 1923.

For particulars, write R. Paul Sanford, Attorney, Stuart, Virginia.—(Adv.)

Obituary

Dr. Stephen Harnsberger.

A former president of the Medical Society of Virginia and one of the most beloved and prominent physicians of Northern Virginia, died at a Washington Hospital, January 1st and was buried at Catlett, Va., where he lived and practiced for many years.

Dr. Harnsberger was born in Augusta County, Va., July 5, 1852, and received his early education at Bethel Military Academy and Emory and Henry College. Upon completion of his academic work, he studied medicine at the College of Physicians and Surgeons, Baltimore, and the Kentucky School of Medicine, Louisville, graduating from the latter in 1877. He later took post-graduate work in Baltimore.

Dr. Harnsberger joined the Medical Society of Virginia in 1893 and had attended nearly all of its sessions since, taking interest in all of its activities. He was a member of numerous medical organizations, being a charter member of and especially active in the Medical Society of Virginia, Maryland and the District of Columbia. He was for ten years an associate editor of this journal and contributed many papers to its pages, was one of the medical examiners for the draft board during the World War, was a local surgeon for the Southern and the Chesapeake and Ohio Railways, and, at the time of his death, was coroner of Warrenton, Va., to which place he moved several years ago.

Dr. Harnsberger is survived by several sons, his wife and only daughter having died during the "flu" epidemic.

Dr. William Morgan Smith,

President of the State Board of Health of Virginia and Executive Secretary of the Virginia Tuberculosis Association, died suddenly at his home, Rosemont, near Berryville, on the afternoon of December 22nd. With the passing of Dr. Smith to his reward the State has lost a devoted and patriotic citizen; the medical profession, a skillful surgeon and physician; the public health service, a scientific and wise administrator; Virginia, a courteous gentleman representing its best traditions; and his friends, a true and loyal companion.

Dr. Smith was descended from a long line of ancestors distinguished in every crisis of American history. In him was blended the splendid qualities of his ancestors. They were soldiers, educators, statesmen and physicians. At Jamestown may be seen the tombs of the Jacquelines, his first American ancestors. His great grandfather was Major General John Smith, of the Revolution. His grandfather, Colonel Augustine Smith, fought in the war of 1812. He, himself, was a surgeon in the Spanish-American War and was later a colonel in the line. He commanded the troops in Richmond which quelled the riots in the strike of 1902. He was offered the position of adjutant-general of the Virginia Militia, but declined, preferring to devote himself to his extensive practice in Alexandria. He was surgeon to the Southern and the Richmond, Fredericksburg and Potomac Railways at Alexandria and at one time conducted a private hospital there.

Just before the World War he accepted the postmastership of Alexandria, believing that it would take only a part of his time. However, the war coming on soon afterwards, he was given the additional supervision of the postal service of a number of camps and government work in that section of Virginia. This placed very onerous duties upon him and took all of his time, making it necessary to give up his practice. This entailed considerable financial sacrifice on his part, but he looked upon it as a patriotic duty and unhesitatingly assumed the additional work. After the war and with the change of the federal administration, he retired to his beautiful home, Rosemont, near Berryville, for a well deserved rest. Later he was asked to become executive secretary of the Virginia Tuberculosis Association. This he accepted at a moderate salary because of his devoted interest in the fight against tuberculosis.

At the time of his death he had just returned to his home, after a strenuous trip in the interest of this work. At the annual State meeting of the Elks, upon the suggestion of Dr. Smith, a resolution was passed to construct at one of the State Sanatoria a building for the sick members of their order. Later opposition of certain doctors developed against this plan. This last trip was in the effort to overcome this opposition.

When the State Board of Health was re-organized in 1908, he was appointed on the board by Governor Swanson, and was the only member of the board to be reappointed by every Governor since then. Upon the death of Dr. Rawley W. Martin, the first president of the Board of Health, Dr. Smith was elected president and has held that office ever since. From the very beginning he has taken a deep and active interest in the work of the board and has practically never missed a meeting except on account of sickness; also he has been ex-officio member of all committees and the steady development of this work has had his personal and interested attention. He has been a large factor in every advance and development made by the State Board of Health.

As a patriotic citizen he has felt it his duty to taken an active part in public affairs. Never running for an elective office himself, he has always worked during election time for the candidate he thought best suited. As a member of the school board of Alexandria and as its chairman, he took an active part in developing the splendid schools of that city, and in seeing that the physical side of the children's development was not overlooked, by insisting on large playgrounds.

He was Past Master of Alexandria Lodge of Ancient Free and Accepted Masons, of which Washington was once Past Master. He was also a member of the Commandery and the Shrine and a member of the Benevolent and Protective Order of Elks.

Few men had so large a number of true and loyal friends. He was always so trustworthy and loyal that he attracted men to him. He never hesitated to sacrifice his means or his health in the interest of his friends or of any cause that he thought was for the interest of the State or the people. He looked upon preventable sickness as an enemy of the people that could be overcome and in his later years, with the self-sacrificing devotion of a crusader, he spent his time and talents in fighting against this enemy.

E. G. W.

Dr. Charles Howard Lewis,

Richmond, died at his home in this place, January 3, after a very short illness, his death being due to heart trouble. Dr. Lewis was born in Baltimore, Md., forty-nine years ago. He graduated in medicine from the University of Maryland in 1900 and later took post-grad-

uate work in Baltimore and abroad. About twenty years ago, he located in Richmond, where he had since made his home and practiced. Dr. Lewis was for a time connected with the faculty of the Medical College of Virginia. He had been a member of the Medical Society of Virginia since 1908. Dr. Lewis took an active part in the World War and was a member of the American Legion and also a Mason. He is survived by his wife and two children.

Dr. James Bassett Rawlings,

Of Lawrenceville, Va., died at a Richmond hospital, December 31, at the age of 59 years. Although a native of Brunswick County, Va., Dr. Rawlings had made his home and practiced in Staunton, Va., for many years and his interment was made in that place. Upon completion of his academic education at Randolph-Macon College, Ashland, Va., Dr. Rawlings entered the Medical College of Virginia, from which he received his diploma in 1889. He had been a member of the Medical Society of Virginia since 1890. He is survived by his wife, two children and a sister and brother.

Dr. John William Holmes,

For many years a resident of Pulaski, Va., died December 5th, at Kenova, W. Va. He was a native of Wythe County, Virginia, and seventy-seven years of age. He graduated in medicine from the University of Maryland, Baltimore, in 1882, and had been a member of the Medical Society of Virginia since 1885.

Dr. Henry Rutherford Morrison,

Of Rockbridge Baths, Va., died at a Richmond hospital, November 11, at the age of sixty years. He was a graduate in medicine from the University of Virginia in the class of 1887, and was at one time a member of the Medical Society of Virginia.

Mrs. Julia Langhorne Coleman,

Wife of Dr. Claude C. Coleman, of Richmond, Va., died at a local hospital, January 4, after a short illness. Besides her husband, she is survived by four small children, her mother and a sister, Mrs. J. M. Emmett, of Clifton Forge, Va.

Dr. Romulus Armfield,

Marshville, N. C., died November 23, of chronic nephritis, aged seventy-three years. He was a graduate of the Medical College of Virginia in 1881 and a member of the Medical Society of the State of North Carolina.

THE following three paragraphs are taken from a report which recently came to us from a physician in Kentucky. This is but one of many reports which demonstrate the increasing interest of the medical profession in the use of Knox Sparkling Gelatine for infant feeding and mal-nutrition:

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 52, No. 11.
WHOLE No. 884.

RICHMOND, VA., FEBRUARY 1926

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Original Communications

INDIVIDUAL PREVENTIVE MEDICINE.*

By WARREN T. VAUGHAN, M. D., Richmond, Va.

It is related that a reigning beauty of the court of Queen Elizabeth had the first artificial denture in history. Her teeth remained in the jaw in spite of extensive pyorrhoea, held in place by the accumulation of tartar. The dentists of today have progressed far indeed from that time and their progress has been paralleled in the medical sciences but we are still far from the goal. The principles of preventive medicine have for years been applied to *groups* in the practice of public health. In a restricted way *individual* preventive medicine has likewise been practiced. Prophylactic inoculation, the training of the fighter or athlete, dietary adaptations and the like are all directed towards the prevention of disease in the individual. Let us first take inventory that we may ascertain the average state of the human body of today and recognize its outstanding defects and weaknesses the better to determine whether they are sufficient in number or extent to warrant stressing the practice of individual preventive medicine.

It is true that the average duration of life has been increased from forty to fifty-five years within the last three-quarters of a century. Dublin has constructed an hypothetical life table which expresses the best mortality we may hope for with our present knowledge. In it the total expectation of life at birth is sixty-five years. Thus by the application of all known methods of individual and group prevention we may hope for an average increase of life nearly up to the Biblical three score and ten. But within this *life* span of sixty-five years what do we observe? Fisk finds the *health* span or the period of full vigor and freedom from disease after maturity extending only between ages eighteen and thirty-one. The average span of complete health after

passing the diseases of childhood and before reaching the chronic affections of middle age is limited to but thirteen years. The *work* span, or interval in which men can compete in industry on a fair basis of equality is not much longer, extending from ages twenty to forty. In Great Britain there is a great falling off in the number of factory workers above age forty-three. Their period of productive usefulness appears to be over at that age. How many of us have seen men, factory workers past middle age, who dye their gray locks and misrepresent their ages, not through pride in person or appearance but for the desperate purpose of retaining their means of livelihood!

The life span is now fairly good, the health span ludicrously short and the work span so restricted that even now one occasionally ponders on the advisability of euthanasia at sixty. The industrial classes in England were found to be for military purposes old men at thirty-eight. During the period of active vigorous industrial life, ages twenty to forty, the death rate rises 166 per cent in the United States.

Take the health span alone. The rejection rate for active military service in this country was 28 per cent. The British Ministry found that of every nine men of military age three were perfectly fit and healthy, two were upon a definitely infirm plane of health and strength, three were incapable of undergoing more than very moderate physical exertion and could almost be described as "physical wrecks", and the remaining one a chronic invalid with precarious hold upon life.

There has been a general reduction in the death rate in the last several decades, but while in Great Britain this is reflected in all ages, the improvement in the United States has been limited entirely to the earlier years. After forty-five in this country we find indeed an increase in mortality caused chiefly by the degenerative diseases.

The annual loss from sickness among the industrial classes has been estimated at eight or nine days. Nine days per year for each

*Read before the fifty-sixth annual meeting of the Medical Society of Virginia, Richmond, October 13-16, 1925.

individual appears a small loss but with 30,000,000 employed we behold a total of 270,000,000 days of work lost each year, at least half of which appears preventable. Further, even within the work span this sickness rate increases with age. At ages thirty-five to forty-four it is nearly double that for ages fifteen to twenty-four.

Infection is the greatest enemy of mankind. In early life it is the contagious and infectious diseases and after middle life the focal infections that cause chief damage. Tuberculosis exists in from 2 to 3 per cent of the working classes. Syphilis has been estimated as occurring in from 3 to 5 per cent among the general population. The incidence of hookworm is of course variable but it is noteworthy that of 259 University students at New Orleans, 30 per cent were infected. The malarial rate for the entire registration area in 1920 was 3.6 per 100,000. This includes non-malarial districts. Eighty-five per cent of people examined at the head office of the Life Extension Institute showed some form of focal infection.

Poisoning of one form or another is an important factor in limiting our health and life spans. No concrete figures exist as to the damage done by tea, coffee or tobacco. Pharmacologic studies have demonstrated their deleterious effect and excess in their use undoubtedly reacts disadvantageously. The mortality among the users of alcohol is from 38 to 52 per cent higher than among abstainers in the same age groups.

Constipation as a form of systemic poisoning must be carefully reckoned with. Food deficiency may be general, due to insufficient food of any kind, or it may be specific, due to lack of an individual food substance, such as mineral, vitamins, amino acid. The latter type is the more frequent. The Public Health Service estimates that 20 per cent of our population is suffering from malnutrition in one form or another. Mineral and vitamin deficiencies are two of our most frequent dietetic errors. Food excess is as pressing a problem as is food deficiency. At age forty-five an individual fifty pounds overweight has a 56 per cent higher death rate than the average for the same age. Even five pounds overweight carries with it a 4 per cent higher death rate. One should experience no gain in weight after age thirty-five. Any gain beyond this age is

not physiologic but should be considered a distinct pathologic handicap.

Protein excess is clearly a factor in the causation of nephritis. Sugar is a fuel and should be used for no other purpose. Excess or carbohydrate not only overtakes the regulatory mechanism, but prevents the eating of other foods containing the necessary minerals, vitamins, bulk, etc. Carbohydrate excess is responsible for much tooth decay, many digestive disturbances, and for diabetes.

Endocrine dyscrasia is a factor to be reckoned with. I know of no statistic compilations on its incidence in the population today. Indeed this would be difficult at present in view of the varied enthusiasm with which such diagnosis is made by different physicians.

Heredity clearly influences not only longevity but the incidence of disease. Heredity, however, acts more frequently as a predisposing factor than as the immediate cause of illness. The underweight hyposthenic individual is hereditarily predisposed to infections such as tuberculosis and much can be done toward preventing this infection by improving the general condition.

It is estimated that from 2 to 3 per cent of the population are psychopathic in greater or less degree. Beyond this there are many in whom mental factors require careful study and treatment. These are cases of maladjustment, worry in the home or at work, so-called inferiority complex, the strain of making a livelihood, simple fatigue, unemployment, uncongenial work. These may be carefully studied and often satisfactorily adjusted.

The Life Extension Institute found 66 per cent of 10,000 factory employees with faulty vision needing correction, while only 25 per cent of these were wearing glasses. Physical or postural abnormalities often lessen an individual's productivity and occasionally seriously impair his health. Any deformity be it congenital or acquired is an impediment. Faulty posture has become more extensive since modern industry has developed so as to keep the worker in one position throughout the day's activity. The Life Extension Institute in an examination of 10,000 persons in industry found 44 per cent with generally faulty posture. Faulty clothing is not as prominent a factor as formerly. Whatever else may be said of present day female attire, it is far more

hygienic and conducive to health than formerly.

Can these conditions be improved? Not only can the sickness incidence during life be lessened but the work span, the health span and the life span can all be lengthened. Take the fruit fly. By modifying its environment and nourishment the fruit fly's life cycle has been experimentally prolonged 900 times. This requires an optimum of physical environment, appropriate food and an aseptic existence. The life cycle of the tadpole may be profoundly altered by feeding thyroid extract. Earth worms have been kept for ten years. Scientific horticultural methods have greatly prolonged the life of certain plants. Fisk argues that the factors which shorten the human life cycle are practically identical with those which have been successfully combated in dealing with such lower forms of life.

"While the human organism has properly been compared in some respects to a machine, it differs radically from an inanimate machine in that in a state of complete health with adequate nourishment, there is provision in the body for maintenance of parts. The body does not simply wear out, it is infected out, poisoned out, starved out, or deficient out."

From improvement already attained and directly attributed to health examinations the Life Extension Institute calculates that the death rate, which in 1900 was 17.6 and in 1920 was 13.1, can be further reduced to 11 per thousand, provided the principles of the periodic health examination become generally applied.

"Good Health" is not merely the ability to live that one may keep at one's work and avoid the doctor. "Good health" implies the ability to live with the joy of living, to awaken refreshed and anxious for the day, to work with zeal and enthusiasm for eight hours, six days out of every week, to rest with undisturbed tranquillity, to play with exhilaration, and to retire with only wholesome fatigue, to a deep restful undisturbed slumber. It implies a steady cheerfulness and self-confidence and freedom from unnecessary anxiety or from physical discomfort or impediment.

The physician who would aid his client in securing this type of "good health" must be not a dispenser of drugs, but an adviser and councillor whose function it is, not to treat symptoms as they arise, but to foresee and forestall.

to search for and discover the individual's locus minoris resistentiae, and to advise how best to protect it against the injuries which are bound to occur.

The technique of the health examination is necessarily minute. We have discussed it elsewhere and will not repeat it here.

"We squander health in search of wealth,
We scheme and toil and save,
Then squander wealth in search of health
Until we reach our grave."

REFERENCES: While various sources have been drawn upon, particularly for the statistical presentation, I would call especial attention to "Life Building and Health Extension" (Macmillan), by Eugene Lyman Fisk, which gives an excellent summary of the general problem.

707 Medical Arts Building.

DISCUSSION

DR. W. A. PLECKER, *State Registrar of Vital Statistics, Richmond*: It is refreshing indeed to hear a paper of that kind read, and I think it should be discussed. The particular part to which I want to call attention is Dr. Vaughan's discussion of the hereditary feature in connection with disease, and the value of eugenics in connection with it. The Bureau of Vital Statistics, as possibly some of you know who have followed our work, is trying to put this very thing across, especially to the young people of the state. We have prepared booklets and have others under preparation, in which we have tried to put across that idea of proper care and selection in marriage. This is conditioned upon one thing, which was brought out by Dr. Vaughan, and that is that the family physician should be the adviser. When we come up to that point we are up against it. This subject is not discussed or taught in the medical colleges, and the average physician is not prepared to give advice on that subject. That is the gist of what I want to say here, that you, as physicians, have before you a great field of usefulness in preparing yourselves to advise on this subject.

Dr. Vaughan referred to the question of tuberculosis. That question was one which we considered a few years ago as absolutely settled, that tuberculosis is not an inherited disease, and that it depends entirely upon infection. That is true to a great extent, but those of you who are old enough and can go back forty years perhaps will recall the day when tuberculosis was considered a hereditary disease, and when persons who were considering marriage looked into that question carefully, as to whether there was a hereditary tuberculosis, as it was considered then. Now we are coming back to that point, that this question should be considered, not only tuberculosis, but various other diseases, and, above all, such mental diseases as feeble-mindedness and delinquencies of all sorts. Those things must be considered, and there is no one who is in position to advise as is the family physician. I should like to urge that you secure one or more of the various excellent works on eugenics. I might say that one of the very best I have read is by Popenoe and Johnson. It is very complete, very thorough, and I see Dr. Vaughan has in his paper some of the very ideas they advance.

Dr. N. T. ENNETT, *Richmond*: I was highly interested in what Dr. Vaughan had to say, for I am deeply interested in community health. What he had to say about individual health has, of course, a direct relation to community health, since community health is simply the sum total of individual health.

In considering adult infection, I should like for you gentlemen to carry home the idea that the best prevention, that which is most effective, is preventive work in childhood. Don't wait until adult life to do individual preventive health work, but do it in childhood.

Dr. ROY K. FLANNAGAN, *Assistant State Health Commissioner, Richmond*: The doctor is the key to this situation. We are pledged to the prolongation of life, and the only way we can do it is to make it an individual matter. Of course, we have to act collectively at times in order to get results. The State Medical Society, in an assemblage such as this, should set the pace for the individual physician. We ought to recognize more clearly the possibilities of this prevention of sickness, the prevention of death in people, say above my age, for instance. We are going to wake up at about forty-five or fifty and find our health gone forever—doctors are just as bad as anybody else. (Someone here says worse).

Even Board of Health officials have been known to have long spells of sickness just from carelessness. If this is true among those of us who know, is it not more likely to be true among those who are uninformed? We must consider where we are. The big possibilities for the incoming generation of medical men will be in this examination of apparently healthy individuals. This is the fruitful field for the future. We have to stop thinking so much about having a lot of sick people to work on, and think more about how to keep this bunch of people in front of us constantly in good health, a much larger thing, and can be made equally profitable.

We have worried a good deal, and I think justifiably, about state medicine. I think Dr. Ennion Williams, Health Commissioner, is to read a paper, before the day is over, about the legitimate boundaries of health activities. Where do we get on and off as health officials?

Each doctor practicing medicine, if he has down in his soul real, ethical principles, must fight the continuance of disease. He is not simply a job carpenter or repair man, he is not simply a patcher up. We must think of ourselves as the great helpers of humanity, who are here to keep our people well. There will always be need for the surgeon, for the patcher up, but the great field is for the doctor who will look after the apparently healthy man who may be in great danger. We have neglected these things, but we must begin to look after them; find the points of decay in our apparently healthy people and put them under a regimen that will correct them. The enlightened individual, at least, whose health is thus kept at par, will not fail to be financially appreciative.

Dr. WALTER COX, *Winchester*: I have been doing health work in a much smaller field than Dr. Flannagan. These ideals stimulate us, but let us consider how we are going to arrive at a closer solution of these problems, how we are going to compete with these life extension institutes, with their advertisements in every magazine in the United States, when our code of ethics prevents us from advertising. I do not believe that this problem can be answered by the individual family physician in his office. I have been interested in this question

for some years—that of preventive medicine, as far as possible, and no drugs. If we should adopt the Chinese idea of no pay for the doctor if the patient gets sick it would possibly be a stimulus to us. But it is not due to the family doctor that this ideal has not been consummated. The family physician is darned near extinct. You will find that if you do not give pills and medicines, most patients will go to some one who will.

We can not put this thing across except by a slow process of education. The best medium is that splendid journal of ours, "*Hygeia*." We have not supported it as we should. Teach the public, not the doctors. We all know. Dr. Vaughan's paper has given this subject a wonderful boost, but I believe we have to think out a proper solution of this problem, and it is going to take time. There has never been anything to benefit the human race that was accomplished in a hurry. We have to remember that it takes sixty years for an oak tree to grow from the acorn. If in sixty years we have lengthened our span of life by this personal preventive medicine, we shall have accomplished a great deal.

Dr. A. A. HOUSER, *Richmond*: I am particularly interested in this question of the practice of individual preventive medicine. Three years ago I started a project myself of individual preventive medicine, and have somewhere near two hundred people who pay me a retainer to go over them once a year and try to impart to them a little health education. The most discouraging thing I have encountered is the individual doctor. I have not talked to a single doctor, except Dr. Vaughan, who has not said it can not be done. The impression seems to be that people want medicine, and if you do not give it to them they will go to someone else. I don't believe that. I believe a great many people are really desirous of getting such a service from the family physician. If the individual physician will give a little attention to the service of Individual Preventive Medicine, it will not be long before the Life Extension Institute is not a competitor, but a trailer.

I am in my third year of individual preventive work. I have consumed this year over half of my time in that work, and I think it pays better than anything I have ever done from the standpoint of substantial service rendered, which is the kind of remuneration a physician should want. We lose sight of what a normal man is after a while, and have to examine a lot of normal people in order to get a true idea. The field for preventive medicine today is a big one. My work has grown just a little faster than I have been able to take care of it. The family physicians are the real backbone of preventive work. It does not depend upon the surgeons and other specialists, but upon the general practitioner and internist. Any man who will give some real, honest-to-God attention to it for a while will feel disgusted at doing any other kind of work. The sooner you get people on your retainer list, going over them every year, teaching them what normal living is, and demonstrating the results that normal living will produce, you will put your client in a position where he will appreciate your efforts and develop an enthusiasm for regular medicine.

Dr. WARREN T. VAUGHAN, *Richmond*, closing the discussion: Dr. Cox has it right, that the Chinaman has the right system. He pays the doctor while he is well, and the doctor takes care of him for nothing while he is sick. But exactly that system will not work, i. e., putting the doctor on a salary to do anything that is necessary when the occasion

arises. It has been tried in England, with the panel system, but the result is that the doctor takes his salary and puts only half his heart into his work. Dr. Houser's system is entirely different. It works, and works beautifully. He gave us some insight into it at the meeting in Norfolk two years ago.

We have gotten much farther in preventive work in pediatrics than with adults. The preventive work with adults is simply an extension of what we have found valuable with children.

I do not take issue with the Life Extension Institute, for it has done three very valuable things. First, it has shown the people the need for this service; second, it has collected a large volume of statistics; third, it has shown statistically that the application of those principles which we have discussed will produce results. They are advertising themselves, yes, but they are also advertising us. Every advertisement the Life Extension Institute puts in the papers is an advertisement for you, as soon as you have shown that you are equipped mentally and physically to practice individual preventive medicine.

A HELPFUL POINT IN THE TECHNIQUE OF APPENDECTOMY.*

By CHARLES R. ROBINS, M. D., Richmond, Va.

All of the questions relating to appendicitis have not been settled yet, notwithstanding the voluminous amount that has been written on the subject. That there is a definite mortality that is embarrassingly high in certain types of pathology is quite clearly proved by review of any large series of unselected cases. It is useless to talk of a mortality of half of one per cent when a candid review of all cases seen will not bear out any such result. If all the cases were in the chronic non-inflammatory stage or if all were operated in the first six hours of the attack, such figures might and should be approximated, but when we have to include delayed cases, misdiagnosed cases, cases in which large doses of calomel have been given on general principles, and cases where the patient comes in either with a local or a general peritonitis, there is quite a different story to tell.

How to bring about a condition in which acute cases will be submitted to operation during the most favorable period, that is in the early hours of the attack, is a question of the utmost importance. It is only by remembering always the dire consequences of delay that the profession can be spurred on to the necessity of prompt action. There are several obstacles that will probably always remain, the principal one being that, while ordinarily acute appendicitis is easily diagnosed, this is

not the invariable rule. The gangrenous type, which is the most dangerous, is notorious for often developing with obscure symptoms and indefinite physical findings. Any case of acute abdominal pain must be subjected promptly to the most careful technique of examination in order to make an early diagnosis. The question to be determined is whether or not the patient has appendicitis, in which case appendectomy is called for. The most dangerous thing to attempt is to diagnose whether or not this particular case should be operated. Without attempting to discuss the various pitfalls which lie about such an attempt, I am quite confident that there is no man living who can without error describe invariably the exact pathology of a diseased appendix that lies in the unopened abdomen. There is no test that taken by itself does not often fail, and very disastrous errors will sometimes occur even after the complete picture, with each detail of history, physical examination, and laboratory investigation, has been carefully considered. I believe it most important that we do not get away from the well proven dictum that the earlier the operation the greater the safety.

After the period for primary operation has passed, the patient may either go safely through the period of resolution or there will develop various extensions and complications which it is not necessary to discuss, but which will create a most serious situation for the patient and in which there will be a very definite number that will die, whatever treatment may be followed. It is certainly true that operation is sometimes followed by a very prompt death at this stage, due apparently to throwing an increased amount of poison into the system before the body resistance to the infection has been built up. The trauma of the operation appears to increase the absorption and anaesthesia to diminish resistance.

I wish particularly to discuss today a method for removing the appendix with a minimum amount of trauma. I find it useful as a regular technique for all cases but it is especially useful in acute cases. In the first place I believe and have found from my own experience that the McBurney incision is the best for acute appendicitis; while occasionally for definite reasons the right rectus or other incision may be indicated, the McBurney is the

*Read at the fifty-sixth annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

routine. This is placed, of course, over the point where the base of the appendix is believed to be and, as a rule, by the use of retractors the base can be exposed, and the appendix identified as it dips down from this point. It is always unfortunate when any of the bowel is extruded in acute appendicitis. By moving the caecum about with a sponge on a stick, the base of the appendix can usually be exposed even if it does not immediately appear when the abdomen is opened. As soon as the base is identified, it is grasped by a pair of stout forceps that extend entirely across the appendix. By then describing a quarter of a circle with the handle of the forceps the appendix is quite readily delivered out of the wound provided there are no adhesions. If there are adhesions, they are more readily separated by working from the base. Of course, it will not always work, but since I have adopted this maneuver I have been surprised to see how often the manipulation succeeded. Sometimes it is necessary to help the delivery and in that case the small French intestinal forceps make a very valuable aid and do not traumatize. It has, I think, the following advantages: It does away with searching with the finger for the appendix. The delivery of the appendix with the finger is sometimes attended with considerable trauma, and often fluid is squeezed out of the appendix or a necrotic appendix ruptured. The base furnishes the point where the appendix is most likely to be normal or near normal, so that a firm hold is secured, and the appendix may be manipulated without fear of rupture or breaking of the appendix. The clamp at the base effectually stops further absorption along that channel. It is such an easy way to deliver the appendix that the time of operation is shortened. It gives the least amount of trauma and disturbance of adjacent viscera. I have often felt in operating for acute appendicitis that, if I could reach down and extract the appendix without touching anything else, it would be ideal. The method suggested approaches this very closely. As an evidence of the lack of trauma associated with this method I have noticed a very diminished amount of pain and nausea following operation.

Stuart Circle Hospital.

DISCUSSION

DR. W. A. BRUMFIELD, *Blacksburg*: At the V. P. I., we have the great responsibility of caring for a large number of students from all over the state,

and every year there are five or six on up to twenty cases in which this question comes up. A student comes in complaining of pain in the abdomen, general tenderness, possibly a little vomiting. Inquiry will reveal the fact that some of his friends are suffering from the same symptoms, perhaps not quite so marked. Further inquiry reveals that the student has received a box from home. Generally a dose of a purgative relieves the condition, or perhaps Nature has already taken care of the condition by considerable vomiting and purging. But sometimes a case comes with more marked symptoms, which rest in bed does not relieve. I refer that case to the hospital, not for operation, but for observation. It is more than forty miles to the surgeon, and it may appear when he gets there that it is a case of acute appendicitis and needs to be operated on immediately.

I should like to inform parents, through you, that when a student is sent to the hospital it does not mean that he is sent for immediate operation, but for study and observation, and then operation if necessary.

DR. CHARLES R. ROBINS, *Richmond*, closing the discussion: I do not want to create the impression that I am in favor of immediately operating for every case of appendicitis at any stage. But I do believe the profession is drifting into the error of regarding operation for appendicitis as a very insignificant thing, and the other error of thinking it does not make any difference when you operate.

I believe very firmly that the early operation, before any complications set in, is going to give the best results, both as regards mortality and morbidity.

NOTES ON THE WEIGHT OF SOME VITAL ORGANS—THEIR DEVELOPMENT, VARIABILITY AND RELATION TO DISEASE—A SUMMARY.*

By R. BENNETT BEAN, M. D., University, Va.
Laboratory of Anatomy, University of Virginia.

The size of the heart, liver, spleen and kidneys was shown to vary with the type of person by studies made in the Manila Morgue while in the Philippines in 1908, and this has been verified by studies made in New Orleans, Baltimore and Charlottesville. About 300 autopsies were studied in Manila. The organs were small in the slender type called Hypermorph and large in the stocky type called Mesomorph, or in the Hypomorph, the infantile adult.

Looked at in broad groups the Hypermorph and Mesomorph are the extreme forms of the white peoples, and the Hypermorph and Hypomorph are the extreme forms of the Yellow-Brown and Black peoples, whereas the average person is in between the two or may be a mosaic or mixture.

The Hypermorph is tall and slender, al-

*Read before the fifty-sixth annual meeting of the Medical Society of Virginia, at Richmond, October 13-16, 1925.

though the extreme form is small, with long, narrow face and pointed chin, long, narrow, high nose, small, thin, long, narrow ears with everted tragus, anthelix and antitragus, and deficient helix that is turned back toward the head. The trunk is long and slender, the chest thin from before backward, and the abdomen flat or depressed. The arteries are usually thin and elastic with sclerosis only in the aged. The brain is large relative to the size of the person and the cerebellum is small, and has few simple convolutions. The type is not muscular, the bones and muscles are small and thin.

The Mesomorph is of large or medium size and heavy, with oblong or oval face, rather broad, but high nose, almost flat ears that are large and broad, with moderately everted tragus, anthelix and antitragus, and large helix. The trunk is broad and thick, the abdomen full or protuberant. The arteries and veins are large, their walls are thick and not elastic. The brain is small relative to the size of the person, and the cerebellum is large and has many intricate convolutions. The pons is also large. The type is stockily built, muscular, with large bones and muscles.

The Hypomorph is small and stocky, usually fat, with broad, short face, nose and head, and bowl shaped ears heavily rolled around the helix which stands out from the head. The trunk is broad and short, the abdomen protuberant, and the chest deep. The arms and legs are short, the opposite of the Hypermorph where they are long. The type is infantile in general characteristics.

More detailed descriptions of these types may be found in *The American Journal of Anatomy* for the past three years, and in the year to come.

After the study of the 300 postmortems from Malecon Morgue in Manila, and the additional study of about 500 patients in the dispensary at Taytay near Manila, the Hypermorph was found to be susceptible to diseases of the tissues derived from the ectoderm and entoderm, such as pulmonary tuberculosis, alimentary, skin and nervous diseases and acute infections.

The Hypomorph and Mesomorph were found to be susceptible to diseases of the tissues derived from the mesoderm, such as heart disease, aneurism and other diseases of the arteries and veins, and diseases of the kidneys, bones and muscles.

Studies of about 800 autopsies and more than 1,000 cases in the Charity Hospital and Touro Infirmary, New Orleans, between 1910 and 1915, verified the observations made in Manila and extended them along other lines. Some of the results of these studies were published in the *Johns Hopkins Hospital Bulletin* of December, 1912, and the *New Orleans Medical and Surgical Journal* of September, 1916.

In 1916 a method was devised which represents the difference in size of the organ in relation to any factor such as stature, sex or type.

The size of the organs was found to vary with stature—1 point for the heart, 4.9 for the liver, 4.9 for the spleen and 3.2 for the kidneys. The size varied with age—5.2 for the heart, 3.5 for the liver, 7.8 for the spleen and 0.0 for the kidneys.

The spleen varies more than the other organs through the influence of age and stature.

The ratio of difference in the organ weight between the Hypermorph and Mesomorph was found to be 19.0 for the heart, 6.1 for the liver, 4.7 for the spleen and 4.1 for the kidneys. This difference is greater than the racial difference between the white and negro male, which is 0.4 for the heart, 1.0 for the liver, 2.0 for the spleen and 0.1 for the kidneys. The size of the organs varied by sex in the negro—14.4 for the heart, 2.9 for the liver, 2.0 for the spleen, and 3.4 for the kidneys.

The heart varies more than the other organs by type and sex, but the spleen varies more by race. Subsequent studies, by Baker and myself, verified these results after utilizing more than 8,000 autopsy records from the Johns Hopkins Hospital, Touro Infirmary, Charity Hospital and University of Virginia Hospital.

Following this, a study from the same material showed that each organ has a rapid growth soon after birth, a second period a few years later, and a third period about puberty. The growth of the heart is slower than the other organs until the age of two years, but after that it is faster. The liver grows faster than the spleen and the spleen faster than the kidneys after the age of two years. The results of these studies were published in the *American Journal of Physical Anthropology* and the Report of the Carnegie Institution of Washington in 1919.

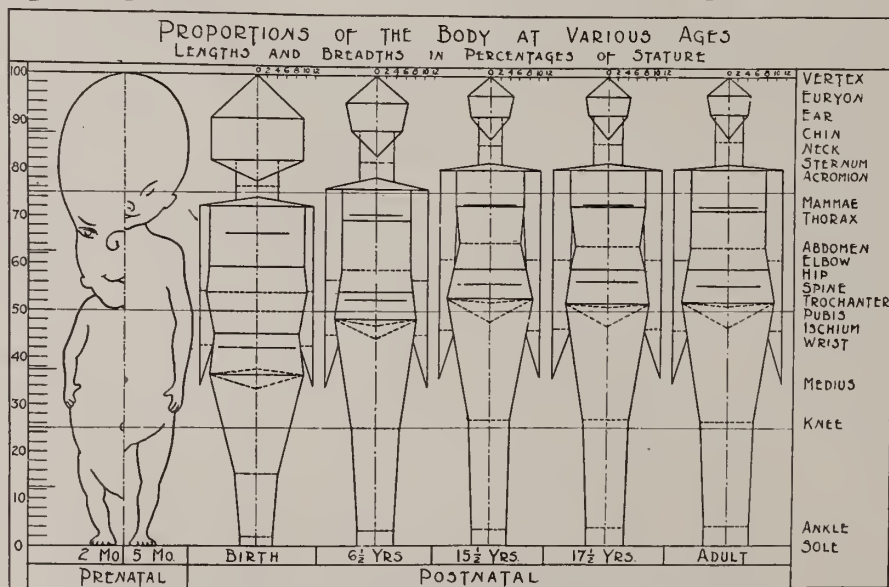
Since that time detailed studies have been made with additional material from the same sources. These were published under the head of The Pulse of Growth in Man, in the *Anatomical Record* for June, 1924. Heart weight, size of body and physical activity are synchronous. For the first few months after birth the child is not very active, and during

this period the growth of the heart is slow. From 6 to 9 months of age the child becomes more active, the growth of stature increases and the heart enlarges rapidly. Then follows a less active period, when the child is learning to stand and walk, and during this period the heart is relatively inactive. After the child has learned to walk and run, a period of great activity ensues and the stature and heart weight increase rapidly. This is about the age of three or four years. The heart has a slight increase in rate of growth again at five or six years, with a rapid increase in size of the alimentary organs. The next period of rapid growth is about the period of puberty, which is earlier in girls than in boys. All the parts of the body reach their rapid growth earlier in the former, and at this time bone growth is particularly active. The final period of rapid heart growth is from 16 to 20 years, when the muscles of the body are undergoing their most vigorous growth.

for some time after is the result of these two conditions.

Before birth the kidneys function little if at all, and their growth is slight except during the sixth and seventh months. The initial increase in growth rate which comes from 3 to 12 months after birth is greater and more rapid in the kidneys than in other splanchnic viscera, and their maturity seems to be reached earlier, at about 15 years. Their growth is slow after the first year until four years after birth when they grow rapidly at this time of great physical and mental activity, increased alimentation, and the consequent greater necessity for the elimination of waste products. Again, there is a very rapid growth during puberty with the coincident rapid growth of the skeleton and heart which precedes that tremendous expression of sexual, motor, mental, digestive, circulatory and respiratory surge that comes between 16 and 20 years.

The most active growth of the spleen before



From the Anatomical Record.—Scammon-Godin. Modified by Bean.

The most active period of prenatal growth of the liver is during the third month, and after birth the liver weighs about the same for two months, when the first period of postnatal increase in growth sets in to last for a few months. There is another period at about 3 years, another at 5 years, and still another at about 10 years. There is a decrease in the increment from the first to the last period. The liver is relatively large at birth and the pelvis is relatively small; therefore, a great part of the abdominal protuberance at this time and

birth is during the seventh month, and after birth for a while in the second six months of the first year and at about 4 to 6 and 8 to 10 years. The spleen is extremely variable in size and its periods of rapid growth are not so clear cut.

The periods of slow and rapid growth have been found for a great many other organs and parts of the body, as illustrated in a chart.

More recent studies were published in an article entitled *Die Morphologie und die Erkrankungen des Menschen* in the *Zeitschrift*

material. The size may be the result of vascular conditions. The size may be the result of colloid conditions. The size may be the result of diffuse fibrosis. It may be the result of an actual growth above the average.

In favor of the conception that large organs predispose towards acute diseases is certain work, such as that of Opie, MacNider and others, showing that excessive fats are unfavorable in cases of acute injury to the liver and kidneys. We also know that life insurance and life institutes favor the thin more than the fat after 40 because of their greater longevity. It is also a recognized fact that high metabolism with thinness is associated with resistance to infections, and low metabolism with obesity is associated with susceptibility to infections. There are other factors that also have a bearing. The thyroid gland induces thinness when active and when inactive the opposite condition with cretinism ensues. The hypophysis also influences fat deposits.

Acute infections cause enlargement of the viscera by enlargement of the parenchyma cells which gives a general diffuse enlargement of the viscera. On the other hand, nearly all chronic diseases, in some way, influence metabolism and there is a corresponding reduction of the storage products in the cells.

From previous researches of the author, it has been demonstrated that the Hypermorph, or slender person, is more or less immune to acute diseases, whereas the Mesomorph or stocky type is susceptible to acute diseases, and the relation of each to chronic diseases is the reverse. The Hypermorph has small organs and the Mesomorph large ones.

The weight of the normal heart, liver, spleen and kidneys is large in those who died of acute diseases and small in those who died of chronic diseases, when the race, sex, age, stature and nourishment are the same. The organs in acute diseases have about the same weight whether the patients are well nourished, thin or emaciated, and the same is true in chronic diseases. The normal organs in acute lobar pneumonia are larger than in any other disease, and they are invariably large in syphilis.

The Relation of Weight to Nourishment.—Emaciation seems to affect the liver more than the heart, and the heart more than the kidneys. The result is to reduce the number of large

organs rather than to increase the number of small ones.

The changes are greater in the male than in the female, and in a different manner. As a result of emaciation, the large organs are greatly reduced in number among the males, with a slight increase in the number of intermediate sized and small organs, whereas the large organs are not greatly reduced in number among the females, and there is a slight reduction in the number of intermediate sized organs, with an increase in the number of small organs. There are five times as many large hearts among the well nourished males as among the emaciated, and only half as many more among the females. There are only four times as many small hearts among the emaciated males as among the well nourished, whereas, there are six times as many among the females.

There are about twenty times as many large livers among the well nourished males and females as among the emaciated, but there are only twice as many small livers among the emaciated males as among the well nourished, and about the same number among the emaciated and well nourished females.

There are about twice as many large kidneys among the well nourished males as among the emaciated, and there are no more of the one than of the other among the females. There are twice as many small kidneys among the emaciated as among the well nourished in both sexes.

The Relation of Weight to Age.—The heart grows larger until the age of 60 years or later, after which it becomes smaller. The heart of the female increases about five per cent more than that of the male.

The liver grows larger up to about 20 years, after which it decreases continually in size until at 90 years it is only about two-thirds its size at 20. The decrease is proportional to the increase in size of the heart and synchronous with it: About five per cent from 20 to 50 years, 10 per cent from 50 to 80 years, more, thereafter, and greater in the female than in the male.

The spleen increases in size to 20 years or earlier, after which it decreases at a slightly faster rate than does the liver, although they are almost parallel. The joint function of the spleen and liver in handling the broken down blood cells may have something to do with the rate of decrease in size. The inverse ratio of heart and spleen-liver size with age is also suggestive. There is a damming back of blood into the liver and spleen when the heart is overworked, and this increases with age.

The kidneys remain about the same size from 20 to 40 or 50 years, but decrease in size thereafter.

The Relation of Weight to Stature.—The heart of the well nourished, thin, and emaciated is about 20 per cent larger at 180 centimeters stature than at 160 centimeters, be-

fore 40 years, but afterwards there is little difference. The liver is about 15 per cent larger at 180 centimeters than at 160. The kidney weight varies little with stature. The spleen weight varies more with the stature than the kidneys, but there are so few spleens when they are separated into groups according to race, sex, age, stature and nourishment that the difference may not be significant. There are, however, more extremely small spleens with small stature and more extremely large spleens with tall stature than for the heart, liver, or kidneys.

COMPLICATIONS OF PULMONARY TUBERCULOSIS.*

By H. G. CARTER, M. D., Burkeville, Va.

We know tuberculosis is an infectious disease caused by an infection received in the majority of cases during childhood, the infection lying dormant in the system until for some reason the vitality of the host is lowered. This infection, received in early life, offers a certain amount of protection against reinfections as long as it remains simply an infection, but it is ever a menace and lowered vitality on the part of the host changes it from the role of a protector to that of a deadly enemy. A study of any of the causes that sap the vitality of the host should be of vital importance in tuberculosis work. We know that over-work, worry and dissipation sap the vitality of the body. We know also that inter-current disease will serve to break down the barrier of resistance and convert this inactive enemy into an active one.

It would be very interesting to go over the histories of our 1,700 cases and list the diseases to which the patient attributes the onset of his tuberculosis. This, however, would be more or less inaccurate because in a great many cases when a patient gives influenza as the starting point of his disease it is true that this is only a "flare up" of the disease with which he is already infected. We have in the institution many attacks of so-called "influenza" that are exacerbations of tuberculosis, some of them caused by indiscretion and some of them with no apparent reason. This also may be true of "pneumonia," "bad cold," or "malaria," though all of them are very prone to start trouble when they actually occur.

In the following pages we list those com-

plications that are actually found to be present upon examination of the patient. We have recorded tuberculous complications as well as the non-tuberculous. We also include some non-tuberculous conditions that simulate pulmonary tuberculosis, and have been sent to us with that diagnosis.

It may be noted here that no general physical examination is made and for this reason a great many abdominal and pelvic complications will be missed. We note only the pelvic diseases that come to us for relief. For the most part we include only those complications that are found on admission examination. In this way we avoid a great many terminal ones found in those hopeless cases that remain in the institution until death.

As might be expected, the most common complication we find is syphilis. We classify as syphilis all those cases showing a 4+ Wassermann or those who show definite manifestations of the disease. In the majority of cases a positive history can be obtained from those showing a positive Wassermann. In 1,700 cases we have discovered syphilis in 171, or 10 per cent. We give anti-syphilitic treatment to all cases showing a positive Wassermann unless there is some contra-indication for its use. In this series of 171 cases we have found 7 cases of moderately advanced or advanced disease who persistently showed negative sputum and positive Wassermann, all of whom improved under anti-syphilitic treatment. We classed these patients as pulmonary syphilis. There are no doubt other cases of pulmonary syphilis that were not discovered by us because of rigid requirements before making a diagnosis. Our requirements are: First, they must show definite parenchymatous lung disease; second, the sputum must be persistently negative for tubercle bacilli; third, the blood must show a 4+ Wassermann with a history of infection; fourth, before definite diagnosis is made, the therapeutic test is applied and the case must improve under vigorous anti-syphilitic treatment. We have had seven cases to meet these conditions. In addition to these seven, we have had cases of definite lung disease with positive Wassermann and negative sputum, who did not respond to the therapeutic test. We have also had cases with "suspicious" lung lesions who responded to the therapeutic test, but whose lung lesion was not considered by us sufficiently advanced to make a diagnosis of pulmonary syphilis.

*Read at the fifty-sixth annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

This was read by one of Dr. Carter's assistants, in his absence.

We find the next most common non-tuberculous complication to be organic heart disease. We found this condition in 22 or in 1.29 per cent. We mean by heart disease either endocarditis, myocarditis or definite failing compensation. Murmurs without symptoms are not classed. Under diseases of the blood we had one case of hemophilia and one case of lymphatic leukemia. The lymphatic leukemia was sent to us with a diagnosis of tuberculous glands. In addition to the glands, he showed signs of moderately advanced lung disease, though his sputum was constantly negative. He remained in the institution until death. An autopsy was negative for tuberculosis.

In this series we have found 13 cases of hyperthyroidism. The majority of these cases were complicating early pulmonary tuberculosis and the majority of them showed negative sputum.

We have made a diagnosis of chronic Bright's disease in only 12 out of 1,700 cases. This is apparently very low, but, as stated at the beginning of the paper, the diagnosis is made on admission examination and we have tried to avoid listing the terminal complications found just before death. Even with the exception of these cases, however, I am of the opinion that this complication is greater than it appears from our records.

Insanity occurred in 8 cases. I venture to guess this is slightly higher than will be found at the institutions for white. They were all cases of dementia precox.

Gonorrhœa came to our attention in only 7 cases. This, of course, does not cover the number of cases of gonorrhœa that have been in the institution.

A great many of those complications listed as below $\frac{1}{2}$ of 1 per cent, such as chronic pharyngitis, arteriosclerosis, malaria, tonsillitis, etc., were probably not apparent enough to attract the attention of the examiner as being of sufficient importance to make a note. This is not true, however, in intestinal parasites. We have made a routine examination of feces in every case and have checked our work by sending a large number of specimens to the State laboratory in Richmond. We have found only 7 cases of hook-worm in 1,700 cases. This is a very interesting observation, as the percentage is far less than that found in the white institutions.

It would certainly seem that hook-worm

would be found more often, for we draw largely from the southern part of the state where we find some localities heavily infected with hook-worm. On account of the trauma to the lung and the sapped strength, theoretically hook-worm should play an important part as a predisposing cause of tuberculosis. It is for this reason that we have searched so diligently for the infection, yet in only 7 out of 1,700 cases have we found it.

We have found asthma in only 6 cases, and diabetes in 5 cases. It is a well-known fact that the negro is not very susceptible to diabetes. Diabetes and Bright's are two of the most serious complications with which we have to deal and almost universally have a fatal outcome.

Of the tuberculous complications, laryngitis is far the most common and occurred in 7 per cent of our cases. That it is uncommon in the early stages of pulmonary tuberculosis may be seen by the fact that we did not record any minimal cases with tuberculous laryngitis, and only 13 moderately advanced cases and 125 or 7.5 per cent of those classed as far advanced showed laryngitis. Tuberculous laryngitis complicating pulmonary tuberculosis renders prognosis more unfavorable.

Enteritis occurred in 40 cases. We mean here by enteritis those whose symptoms are so marked that there is no question of doubt. If an attempt were made to diagnose with the X-ray and if we were to list as enteritis those cases whose vague abdominal symptoms would suggest this complication, I am of the opinion that approximately 20 per cent instead of 2 per cent would show this as a complication. One in every fifty cases that enter the sanatorium shows the typical picture of advanced disease with the colicky pains, diarrhœa and rapid loss of weight. We have found tuberculous peritonitis in 13 cases.

It is very interesting to note that in our complications fistula-in-ano has occurred in only 11 cases, or in less than 1 per cent. I believe that an institution for white will show this condition more often and I believe the explanation lies in the fact that fistula-in-ano is usually found in the old chronic cases of tuberculosis, of which the percentage is much larger among the white than the colored people.

Our percentage of tuberculous adenitis and arthritis is low on account of fact that we admit few children. Tuberculous meningitis has been found by us in 5 cases.

We have found spontaneous pneumothorax as a complication in 17 cases, the collapse ranging in size from a small orange to a massive collapse encroaching on the heart and opposite lung. Eight of these cases proved fatal. In some of them, death followed the initial shock; in others, death was due to pyogenic infection following the rupture. It is interesting here to note that, in 211 deaths, 14 have been due directly to hemorrhage—that is, 14 died during the hemorrhage. Hemorrhage is a common cause of death in tuberculosis on account of the pneumonia that may follow or a wide spreading infection following the hemorrhage, but it is generally considered that death during hemorrhage is not common. We have found it to be rather common.

Among those non-tuberculous conditions simulating tuberculosis, we have found lung abscess in 10 cases. Most of those cases gave a history of pneumonia or a tonsillectomy under general anesthesia. We find lung abscess as stubborn a condition to deal with as pulmonary tuberculosis. We have tried artificial pneumothorax in some cases with partial success.

We have found malignancy in 5 cases. The diagnosis in these cases rested on symptoms, physical examination and X-ray plates as well as the ultimate outcome.

Bronchiectasis has been found by us twice. We mean by this that we have found two cases of bronchiectasis in which the cause could not be listed as tuberculosis. As stated above, we have found 7 cases of pulmonary syphilis in our series of 1,700.

In summary, I would say that a list of those conditions complicating pulmonary tuberculosis would vary greatly with the accuracy of the examiner. Our books show a great variation in the number of minor complications recorded by the different physicians. This is especially true of glands, tonsillitis, arteriosclerosis, etc. Some examiners record all conditions found; others record only those to be treated. This is not true, however, of syphilis, intestinal parasites, laryngitis, and the more serious non-tuberculous complications. And, in summary, I will again call attention to the comparatively large percentage of pulmonary syphilis and lung abscess, and to the low percentage of intestinal parasites, fistula-in-ano and asthma. Diabetes also shows a very low percentage. I would also call attention to the high percentage of those dying with hemor-

rhage and to the large number of cases of spontaneous pneumothorax. The latter I believe to be even greater than is shown by our records.

In the preparation of this paper, I am indebted to the able assistance of B. S. Yancey, a student of the University of Virginia, for compiling the statistics.

DISCUSSION.

DR. H. U. STEPHENSON, *Richmond*:—This paper is, to me, one of the finest papers we have had during this session. The information given therein is wonderful. I have heard a great deal of Dr. Carter's work, and I hear he is a great man. I have never seen him, but I am convinced that he is very systematic, and a good man in a good place. He has evidently given a great deal of attention and study to his paper, and has studied his cases. I believe the paper is very accurate, and I want to congratulate the society upon it.

DR. W. A. BRUMFIELD, *Blacksburg*:—One thing that struck Dr. Carter as a little remarkable is what every field worker and laboratory worker would have expected. He reports seven cases of hook-worm in 1700 cases examined, negroes. In one county in the state I found over twenty per cent hook-worm infection among white school children, and in the same place examined 115 negroes and found hook-worm only in one quadroon. That is exactly what we have found all over the South, and when Dr. Allan J. Smith experimentally infected a number of negroes, mulattoes, and whites, he found the degree of infection low in the negroes, higher in the mulattoes, and highest in the whites. I know of no disease in which the racial line is so sharply drawn as in hook-worm disease. The negro enjoys almost an immunity. I do not know why.

SOME ASPECTS OF MOUTH TROUBLES.*

By J. S. DAVIS, M. D., University, Va.

I feel that some apology is due you for the selection of my trite title, but the subject is one in which I have been interested during the past summer, when I looked up the appropriate literature for the revision of an article. Your amiable chairman of the program committee is *particeps criminis* therein, as he with prophetic insight divined my impulse and intimated that out of the presumed but delusive abundance of my heart the mouth might speak. I hope, however, not to leave you with the bad taste traditionally connected therewith, as several savory and perfumed mouth washes will be advised.

It would be unprofitable, even if time permitted, to discuss or even mention all the varieties, but I should like to speak of a few of those oral distinctions, that recent time has made fashionable, or which present some com-

*Read by invitation before the Richmond Academy of Medicine, November 10, 1925.

parative novelties of etiology, pathology or treatment. The familiar symptomatology will receive very little attention. Many general diseases have distinctive oral manifestations, such as sprue, pellagra and pernicious anaemia, as well as several exanthemata, and some cutaneous maladies may invade the mouth. The first to be mentioned is *aphthous stomatitis*. The etiology of this common form has experienced great difficulty in establishment; bacteria, dyspepsia and neuropathic influences have been suspected and even lapses from veracity accused, but vitamins could not escape responsibility, so Gerstenberger finally found the principal factor to be lack of water soluble vitamin C, which is secured from yeast, tomatoes and orange juice. The appropriate dietary must be supplemented by the time honored nitrate of silver locally, but it is claimed the trouble will never occur if the food is proper.

Fordyce's disease which presents somewhat similar lesions is confined to the mucosa of the cheeks and lips, but never appears on the palate or tongue, as aphthous stomatitis does.

The odium of producing thrush has been extended to a number of different fungi, chiefly of the monilia persom group, though odium albicans and *saccharomyces albicans buccalis* still maintain their opprobrious supremacy. Further laurels have been added to gentian violet, now so popular for everything, which in one per cent solution locally applied is regarded as a specific for this trouble. In one of my cases, twenty-five years ago, where it complicated typhoid fever; the gullet was so obstructed as to necessitate gavage, which had to be repeated every six hours, so rapidly did the growth refill the channel. Calomel in small doses then recommended for the condition signally failed and the patient died, mainly from this factor.

Time and further study have drawn the noose more tightly around the neck of Vincent's combination as the main bacterial cause of *ulcerative stomatitis*. Predisposition is furnished by under-nourishment, debility and over-exertion, as well as syphilis and some other troubles. Chemically, phosphorus, mercury, lead and the prolonged use of aspirin have been concerned.

There are many varieties, of which the "trench mouth" in the great war is the most

conspicuous, and numerous, though often vain, remedies are advocated for its relief. The best, according to Osborne, is:

Bisulphate of Quinine	0.1
Boric Acid	5.
Syrup of Ipecac	25.
Glycerine	25.
Peppermint Water qs. ad.....	200.

Dilute one tablespoonful with an equal part of warm water and use on a tooth brush or as a mouth wash. This is one of the very best applications I have ever used and rarely fails to give complete relief.

Gunston's specific consists of:

Wine of Ipecac	6 drams
Glycerine and Fowler's	
Solution aa	10 drams
Hydrogen Peroxid q.s. ad....	16 ozs.

This is used as a spray twice a day.

Mercuric cyanide one per cent, after cleansing with H_2O_2 applied on cotton, is Corby's specific.

Driscoll thinks all ravages of Vincent's will yield to intravenous injection of one per cent tartar emetic freshly prepared in freshly distilled water. Five c.c. is given slowly, and in two to three days 10 c.c. may be similarly administered. Permanent relief is then obtained after six doses at two or three day intervals. Be sure to get in the vein or disappointment and disaster will impend. Arsphenamine locally and by injection is also very good.

Noma now admits Vincent's as its chief cause after much experimentation, as several complacent dogs can testify. Metastases in the stomach and colon have been described by McCarrick in one case.

As to *pyorrhoea alveolaris*, Tilden claims that neither it nor tooth caries will occur if the diet is free from salt meats, and refined flours, *i. e.*, if we keep up our alkaline reserve; and Howe emphasizes the importance of an ample and available supply of calcium, principles which the Defensive Diet League of America is striving to popularize. A minimum of fats, sweets and heavy meats with a maximum of fruits, grains and vegetables is then the best bill of fare. All fruits are alkaline except prunes, plums and cranberries, as are all vegetables except peas, beans and lentils. Most fruits contain vitamins in abundance. Acidosis through improper food is to blame. Slight degrees of this should be detected and attended

to according to the following scheme of Harter: 1. Sit still five minutes. 2. Draw several deep breaths and then hold the breath with nostrils and mouth closed. (Caution against releasing at first sign of discomfort). Normally breath can be held for 45 seconds. If only 30-40 seconds, mild acidosis is indicated; and 20-30 seconds, high acidosis requiring immediate treatment by other means than food alone. Dentists incriminate abnormal pressure on badly placed teeth as a large factor in pyorrhoea alveolaris.

Oral sepsis has been accused of so many crimes (in fact, there is no ill of the flesh that escapes it) that it would indeed be a God-send if a reliable pathognomonic sign of its responsibility were available in many obscure conditions,—and Torrens claims to have done so. He describes a specific type of white corpuscle found only in oral infections. It is a large lymphocyte-like body, irregular in contour, whose cytoplasm has grayish grainy appearance. The nucleus is irregular and stains with moderate density, frequently cuboid or ovoid with one flattened side. This irregularity does not correspond with that of any adjacent cell, so it is independent of pressure. The cytoplasm frequently shows vacuoles and acidophile granulations. Technique must be perfect. This cell is occasionally seen in lues and early tuberculosis, but should be distinguished by their history and other symptoms. This, however, may be a mare's nest, as Haden, after much study, denies the conclusion *in toto*, and I have not found such a cell in a few cases of undoubted mouth sepsis, unless a recent and most remarkable case now in the University of Virginia Hospital exemplifies it.

This case is that of a white woman, seventy-seven years of age, who came under my care recently complaining of great debility and a violent pain in the left side over the lower ribs.

Physically, there was a pleural rub and some broncho-pneumonia. She had been in bad health for a number of years and had lost most of her teeth by abscesses and decay. Her mouth was very foul and the odor of her breath almost cadaveric. Her temperature was 103° and her pulse 110.

The leucocytes numbered 116,000 and on the film looked as if the vast majority were lymphocytes and accordingly leucaemia of that variety was suspected. There were no eosino-

philes or basophiles. Closer study, however, revealed many cells like those described by Torrens, mononuclear white cells with granules. The nucleus was indented often or ovoid so that our hematologist was inclined to call them young polymorphonuclears. The count showed: Pmns. 5 per cent, lymphocytes 8 per cent, atypicals 86 per cent. No other varieties. Of atypicals 3 per cent showed granules and 97 per cent none.

Some showed the peroxidase reaction, and these have been greatly increased in number since we got the mouth clean.

It is suggested that possibly Torrens' diagnostic corpuscle may be only a young neutrophilic leucocyte brought out by a violent toxin. The pulmonary condition persisted, but the white cell count has now fallen to 41,600 and the irregular pmns. are 78 per cent with 7 per cent showing granules. This tinctorial affinity is then increased as she recovers from the mouth trouble.

A similar peculiarity was described last spring in the blood of cases of lethargic encephalitis and corroborated experimentally by injuries to the thalamus. My patient, however, does not show any lethargic symptoms except a double ptosis which has persisted from childhood and is shown by several members of her family. On Torrens' view the oral infection might have hit the basal ganglia.

Guthrie describes a form with a green mould extending up on the tooth and considers it strongly suggestive of pyelitis. He has seen it associated many times. Swollen gums with a green exudate are sometimes due to actinomycoses, though yellow grains are there too. The "blue gum" nigger bite has lost its specific virulence, being often due to lead. Dark pigmented spots on the oral mucosa were found by Weber, unconnected with Addison's Disease, but with tuberculosis elsewhere or pernicious anaemia. It may be atavistic and corroborate the evolutionary ideas as to the ancestry of some degenerates, especially canine.

Dr. Haden found more bacteria at the roots of dead teeth whose X-rays were negative than those that showed abscesses, so that no devitalized dental remnant should be regarded as safe. A nitrite producing bacillus has been found in the saliva of sufferers from sulphamoglobinemia and a vaccine made from it has been successfully used.

As to treatment, emphasis is strong on thorough eradication of the focus, not just simple tooth extraction and blind curettement in alveolar abscess, but a real surgical operation, with a clearly visible field, as otherwise actual harm may result from leaving behind some thereby invigorated infection.

In chronic cases with leucopenia the preliminary administration of nuclein is desirable to relieve the anaphylaxis this indicates.

The tongue still continues unruly and acute glossitis may be a fatal affair. Tongue coatings, of which our forefathers made so much, have since lost most of their dignity and significance. A unilateral white tongue, where epithelium and papillae are blanched, associated with a very bad taste, has been described to off-set the antiquated black variety. It is probably a neurotic affair.

Moeller's glossitis, glossodynia exfoliata, has also made its debut, especially in women, being characterized by abnormal smoothness and a loss of papillae, with a tendency to ulcer formation on the lips and margin of the tongue. Acid foods are peculiarly painful. It recurs with periods of painlessness. Olive oil is the best application and vehicle for sore tongue.

Handfield Jones has well described and distinguished the different forms of ulcer of the tongue. They are simple or traumatic, tuberculous, syphilitic and neoplastic. The traumatic are of varied depth, a pinkish yellow color and apt to be painful. The edges are indurated and sloping. The tuberculous form is shallow, grayish yellow and also painful. The edges are sinuous and not undermined, but sloping. The syphilitic and neoplastic are both deep and gray in color, but not painful locally though there is often referred suffering in the malignant forms. The edges of the luetic form are punched out and ragged and undermined, while the neoplastic are raised, everted and also ragged. The treatment is addressed to the cause and the prognosis good except in the tuberculous and malignant forms.

I would especially warn against treating the condition with caustic applications, as I have been badgered, cajoled or provoked into doing by insistent patients. We all feel this way in elderly subjects but now precocious youth aspires to cancer and such measures will lose valuable or irreparable opportunities.

I can testify to the relationship of glossodynia to lingual tonsillitis, as one of my cases

was promptly relieved by removal of the offending structure. The idea that torus palatinus indicated tuberculosis, syphilis, pulmonary osteo-arthritis or degeneracy has exploded and it is now regarded only as a congenital anomaly chiefly in females. The preponderance of women sufferers with mouth trouble is remarkable.

No one can be more sensible than I of the desultory and disconnected presentation I have made of some of the mouth's ills. They are still regarded as among the minor disorders, but that they can cause great discomfort, as well as serious and even fatal disease, is rapidly gaining wide recognition.

The realization that dentistry is a highly specialized branch of surgery and the prompt and sympathetic co-operation between its votaries and ourselves is already productive of the greatest benefit to an increasing number of mankind.

The mouth is the largest and most patulous orifice of the body and the least able to defend itself against infection and abuse. Its study has not only local but general interest, as many constitutional diseases may show their first and characteristic symptoms there, as already stated.

Clean hands and a pure heart are highly recommended by the Psalmist, but to keep the door of the lips has also Scriptural authority and I would close with Woods Hutchinson's advice, which I now exemplify lest your patience fail and delayed vengeance fall—"To shut the mouth and save the life."

CARBOHYDATES IN NON-DIABETIC ACIDOSIS.*

By ALBERT H. HOGE, M. D., F. A. C. P., Bluefield, W. Va.

The condition known as acidosis, which really means some disturbance of the acid base balance of the body, has, since the discovery of insulin, received a great deal of attention. It will be the purpose of this paper to deal with that form of acidosis seen in patients who do not have diabetes.

The non-diabetic form may not be so dangerous as the diabetic type, yet a close analysis of deaths occurring in any hospital will reveal that it materially helped to increase the number.

The treatment of this type is relatively

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simple, and can be carried out by any physician or nurse, and does not require especial training in dietetics. Recovery is usually rapid, at times bordering upon the spectacular. It is quite unlike the diabetic type of acidosis, in which the patient is changed from acute illness to a chronic type, with danger of return, anytime, to a critical stage. In the non-diabetic type, a complete recovery is usually a permanent one.

There will be no attempt in this paper to deal with the question of alkalosis, which does clinically resemble acidosis. The differentiation is made by examining the blood carbondioxide. The use of glucose helps to restore the acid base balance of the body. Clinically, it has been of great value in both forms; therefore, a differential diagnosis of acidosis and alkalosis is not essential in carrying out the treatment advocated.

It is my desire to show you that I believe in many diseases it is possible to lessen the degree of acidosis by the proper control of diet. A well person of average size, at very mild work or leading a sedentary life, demands about 2,000 to 2,500 calories of food daily. In diseases which cause a high temperature, this demand is often materially increased. At the same time, the amount of food and the desire for it are lessened. These patients are usually put upon a liquid diet, often of low caloric value, of usually less than 1,000 calories per day. The carbohydrates that are stored up in the body in the form of glycogen are rapidly utilized, the result being, patients are forced to live largely upon their own fats. Now, a study of these charts will show to what this leads.

CHART No. 1.

Normal Protein Digestion.—Some of this, you can see, goes to tissue repair, while some combines with the hydrochloric acid which enters the blood, and forms ammonium chloride; a part of it combines with CO_2 to form urea, while 58 per cent of it is converted into lactic acid.

Normal Carbohydrate Digestion.—The sugar or starch is converted into dextrose, then to lactic acid, and this is converted into an unknown substance. The physiologists and chemists have not, as yet, been able to definitely determine the end results of carbohydrate digestion. It will be seen, also, that a portion of the unknown substance of carbohydrate digestion combines with the end result of fat metabolism.

Normal Fat Digestion.—The fats are changed to fatty acids and glycerols in the small intestines. As they pass through the intestinal walls they are changed back into fats again, then immediately back to fatty acids and glycerols. The cause of this peculiar and apparently unnecessary phenomena is unknown. Ten per cent of this fatty acid and glycerols is converted into lactic acid and the remainder, or 90 per cent of the total fat, is converted into diacetic acid, which would remain unchanged in the blood and be excreted by the kidneys as diacetic acid, acetone and beta-hydroxybuturic acid but for the fact that the unknown substance just described as being the end result of carbohydrate digestion gives off a substance, which is also unknown, that combines with the diacetic acid formed from fat digestion and causes it to be eliminated as carbon dioxide and water.

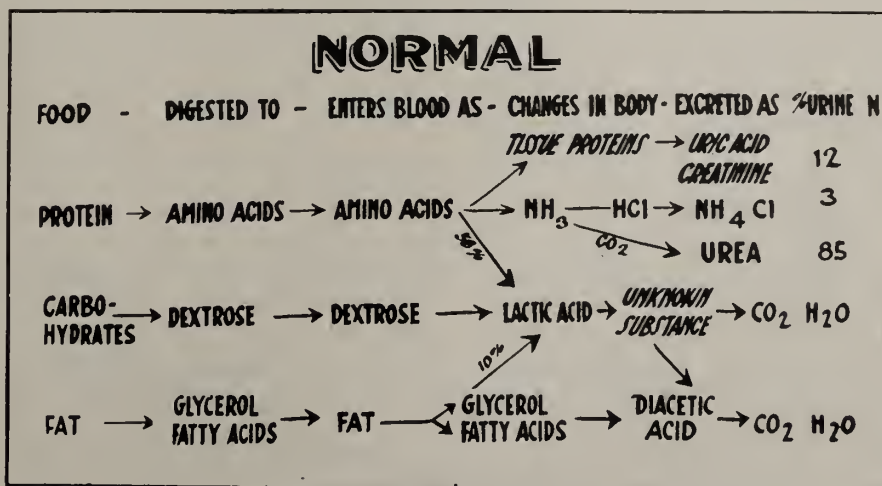


Chart No. 1.

It will be seen, then, from a study of this chart, that about 90 per cent of all the fat taken into the body, unless acted upon by the unknown substance in the carbohydrate food, would remain as some form of acid in the blood, and would produce a ketosis. This food is, therefore, spoken of as ketogenic food, while all carbohydrate food and 58 per cent of the protein food and about 10 per cent of the fats are converted into lactic acid and produce the unknown substance which destroys these acid bodies. They are, therefore, spoken of as the anti-ketogenic foods.

avoid acidosis, one must maintain a ratio between the ketogenic and anti-ketogenic foods, because fats will not burn except in a carbohydrate fire. Palmer and Ladd have shown that one gram of carbohydrate will safely burn three grams of fats. The ratio of anti-ketogenic to ketogenic foods of one to three is well known in treating diabetics. A ratio of one to four will cause the appearance of acetone bodies in the blood, and, since they are acids, they must be neutralized. If the amount of carbohydrate intake is not sufficient to create enough of the unknown substance to change it

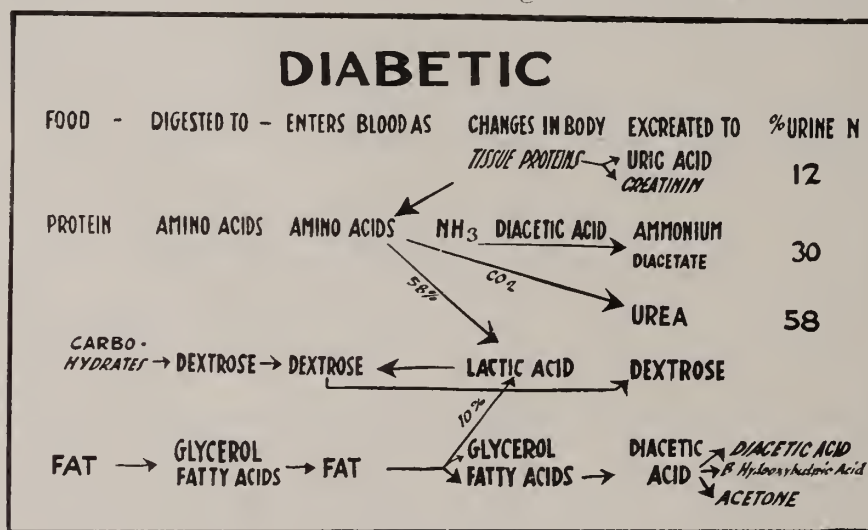


Chart No. 2.

CHART No. 2.

The second chart illustrates what takes place in a patient who is a complete diabetic. The principal changes to be noted in this are first under proteins. There is no protein that goes to tissue repair, but, on the contrary, the bodily tissues are broken down and converted back into amino acids. Instead of the ammonia combining with the hydrochloric acid, as shown in the normal, it combines with the diacetic acid in the blood and is eliminated as ammonia diacetate. The urea is reduced from 85, in the normal, to 58 in the complete diabetic. There is no lactic acid formed from carbohydrates in a complete diabetic; therefore, all of the carbohydrate food taken is converted into dextrose and is eliminated in the urine as dextrose. In studying the end result of fat in this condition, there is no unknown substance formed from the carbohydrates to combine with the diacetic acid. This later must, then, be eliminated as acetone or diacetic acid.

It will be seen, therefore, in the diabetic, to

to carbon dioxide and water, the body is forced to call upon the alkali reserve, or buffers, to destroy these acids, with the result that the bicarbonate reserve and the carbon dioxide in the blood are reduced in proportion to the degree of acidosis.

Every physician is now familiar with the effect of insulin in diabetic acidosis and coma.

Thalheimer's first article on the use of insulin in post-operative acidosis opened quite a new field in the use of this most valuable remedy. That a certain proportion of operative cases will develop an acidosis is well known to surgeons. Several things contribute to this, an important one being the anaesthetic, especially when ether and chloroform are used. The longer the anaesthetic, the greater the danger of anaesthetic toxemia. The use of ethylene as an anaesthetic seems to have greatly lessened the danger of acidosis. The presence of any infection increases the danger. The shock and loss of blood oftentimes predispose to it. The custom of light feeding or partial

starvation for a few days before operation, to lessen gas pains, should not be employed, especially so when one considers that the entire intestinal tract is, as a rule, cleared of all food material before operation, and none of these patients, as a rule, are allowed food for a few days following operation. The intake of fluid is always limited. It seems the shock, which accompanies so many surgical operations, causes a rapid using up of all carbohydrates stored in the body in the form of glycogen, and patients are forced to live for several days almost entirely upon their body fats, which is about 90 per cent ketogenic food. The ratio of one to three is not maintained; therefore, they develop a ketosis, and with that the patient always has vomiting. This really produces a vicious circle, the vomiting causing starvation and preventing the further intake or retention of fluids, thereby increasing the ketosis. It is, consequently, not difficult to understand why emergency cases, with little or no preparation before operation, do, as a rule, vomit far less than those cases that are carefully prepared. I wish to emphasize fully that one may have a severe acidosis with little, if any, ketosis. There are many things that affect the alkali reserve of the body that are, as yet, without satisfactory explanation.

I wish to tell you today of some of the results we have gotten in our hospital in post-operative acidosis and the toxemia, or vomiting, of pregnancy. I will not bore you with long case reports. During the past twenty-three months, we have had nine cases of severe acidosis following operations. Ether was used in each case. They all showed a large amount of acetone and diacetic acid in the urine, and each one had a severe and continuous vomiting, flushed face, the lips and tongue were dry and parched, they were all restless, the pulse was rapid and weak—in fact, I have included in this report only those cases of very severe acidosis, the kind that usually vomit until they die. In eight of these, we were able to control the vomiting entirely in from twelve to thirty-six hours by the use of glucose and insulin. But in the ninth case, a neurotic man, following a gastro-enterostomy, vomiting was almost continuous from the time of operation. During the second day he was given 1,000 c.c. of 5 per cent glucose, intravenously, to which was added thirty units of insulin. There was a distinct improvement, and the following day

he was given 1,500 c.c. and forty-five units of insulin. The fourth day he retained the small amount of fluids taken by mouth. The vomiting returned at intervals, though he was given glucose and insulin daily. The patient died on the ninth day, rather suddenly, after vomiting a large amount of blood. His acidosis, however, had almost entirely cleared up.

I feel the rapid recovery of the eight cases, and the partial benefit obtained in the ninth case, justify me in reporting them. Our entire staff feel that the recovery of some of these cases was due entirely to the use of glucose and insulin. We are using solutions of glucose, with or without insulin, more and more, to replace the former so-called stock solutions, following severe operations to prevent acidosis. The hearty co-operation of our surgical staff is responsible for the results obtained in these cases. Surgeons do not always spend much time on the study of the action of drugs. When medication is necessary, the surgeon should either study more carefully the art of the physician, or else, allow the physician to decide what the patient should receive.

We have treated in the past year three cases of severe toxemia of pregnancy. Two were four months' pregnant and one six months. The latter had lost thirty-eight pounds in weight. These cases were referred to the hospital by their family physicians to have pregnancy interrupted, so alarming were their symptoms. All had acetone in their urine, and each one had vomited from early in the second month and had been thoroughly treated by capable physicians, without any real benefit. Each case was treated exactly alike—put to bed, and was daily given enemas of sodium bicarbonate, 4 oz. of 20 per cent solution, glucose by rectum, every three hours, and 5 per cent glucose and insulin intravenously. In each case the vomiting was controlled in less than forty-eight hours, after which they were put upon an almost absolute carbohydrate diet, especially fruits, the glucose and insulin being continued for one week. After discharge from the hospital, these patients were kept largely upon a diet rich in starch and sweets, and urged to use fruits of all kinds. Upon this diet, and without further medication, they all went the full term without further serious return of vomiting. I wish to emphasize the value of fruits in these cases, and correct the impression a few have that acid fruits should

not be given in acidosis. The more acid, the larger amount of sugar it will be necessary to use to make it palatable. One gets, therefore, the normal fruit sugar plus the added cane sugar. It should also be borne in mind that the acids of citrus fruits are oxidized in the body and changed to bicarbonate. An acid fruit will, therefore, become an alkali in the blood and help to destroy the acids already present.

The investigations of Potter and Harding have shown that the toxemia and vomiting of pregnancy is generally due to an acidosis or ketosis. They have treated many cases of severe vomiting in pregnancy successfully by using glucose. Since this condition is largely due to insufficient combustion of carbohydrates, one would naturally ask why use the insulin with the glucose. I believe I have shown you, on the charts, that ketosis occurs only when carbohydrate metabolism is sub-normal. I believe it is fair to presume that ketosis occurs when either insufficient carbohydrates are supplied to the body, or else, the carbohydrate metabolism is below normal. We can easily supply the carbohydrate intake by giving glucose. A number of investigators have shown that some of these people cannot utilize the glucose alone, after it is given, and that it will pass out through the urine, as glucose unchanged. Now, unless carbohydrates are combusted and converted into the unknown substance described, it matters not how much is taken into the body, the acidosis due to ketosis will remain unchanged. Since insulin, when injected, causes both a rapid and complete combustion of carbohydrates in the body, it seems rational that insulin combined with glucose should clear up an acidosis due to ketosis, more rapidly than when glucose is used alone. My clinical experience has shown this to be the case. I would, however, be reluctant to form opinions from my limited number of cases were it not for the great work of Thalheimer, Fisher, Mensing, Snell and others, who have reported cases of post-operative acidosis treated with glucose alone, without benefit, and promptly got well when insulin was added to the glucose. In our work, the insulin has always been added directly to the glucose and all given together. There are those who advocate the use of insulin separately, half the dose being given before the glucose injection is started, and the remainder given at the completion of

the injection of glucose. I believe this to be of minor importance.

There are those who will, of course, be wondering how much insulin to use. Since this product is not standardized and is subject to many changes, one can only follow a safe course. One unit of insulin will burn about one and one-half grams of carbohydrate. It would be safe, then, to use one unit of insulin to three grams of glucose. The 5 per cent glucose solution being the one used in most hospitals, we can figure our doses from that. One thousand c.c. of this solution contains about 50 grams of glucose. You can safely add one c.c. of the U-20 strength, or twenty units of insulin, and have no fear whatever of shock, the ratio being about two and one-half grams to one unit. I wish to again emphasize that one cannot expect satisfactory results from this form of treatment in any type of acidosis except that due to some disturbance of the carbohydrate fat metabolism with the production of ketosis. It is evident that the treatment of acidosis depends upon the manner of its production.

The acidosis of renal origin is due to the failure of the kidneys to eliminate acid phosphate. In these cases there is no interference with the acid production in the body, but the kidneys are simply unable to do what they should. It is evident that insulin and carbohydrates cannot influence this condition.

In acidosis occurring in diarrhea of infants and young children, one sees the type of acidosis occurring in the so-called ileo-colitis or alimentary intoxication. This form of acidosis is not the result of an excess production of acetone bodies, although these are, at times, increased. At other times, in the presence of severe acidosis, there will be no evidence of ketosis. The acidosis is due in part to the failure of the kidneys to eliminate the acid phosphate, the mechanism being similar to that in renal diseases. The difference is the failure of the kidneys to eliminate the acids in these cases, and is the result of a functional incapacity of the kidneys due to the fact that so much fluid has been lost from the body by other channels that the urine secretion becomes almost impossible. Oftentimes the urine is reduced to one or two ounces daily. The treatment of this condition calls for the administration of fluids by mouth, intravenously, intraperitoneally, or

by whatever form they can be introduced. I believe that glucose and insulin should be used in these cases, but it would be useless, were not a large amount of fluid also used.

SUMMARY

In a series of post-operative non-diabetic acidosis, consisting of nine cases, the use of insulin combined with glucose has given better and more rapid results than by any other method known to us.

In a series of three cases of severe toxemia or vomiting of pregnancy, each having failed to respond to any of the usual methods of treatment, all were carried to full term without further discomfort.

HISTORICAL RESUME OF ACID INTOXICATION THERAPY. Comparatively recent—50 years. Redounds to credit of modern medicine.

1873. Salkowski. (Virchow's Arch.) Withdrew alkali from bodies of rabbits by administration of Taurin. Consequent death.
1877. Walter. Increase in NH_3 excretion in various diseases found an increase in diabetes.
1883. Stadelmann. Substantiated this work by comparison of mineral acids and bases. Showed that the bases were greatly in excess of mineral acids. Concluded that acidity of urine due to organic and not inorganic acids.
1884. Minkowski. Showed that the acid was B hydroxybutyric and that diacetic and acetone could be derived from it.
1889. Magnus-Levy $NaHCO_3$ therapy in man overcomes diabetic coma. Walter had discovered that he could temper the acidosis of his rabbits with $NaHCO_3$.

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'Tis strange how the things you want to recall,
You find you cannot remember at all,
When the things you would rather, far rather forget,
Are the things that in memory firmly are set.

—Selected.

MEGALO-URETER.*

By JOSEPH F. GEISINGER, M. D., Richmond, Va.
Stuart Circle Hospital.

It is not the purpose of this review to introduce a consideration of those dilatations of the urinary channels which are contingent upon obvious obstructions of the outflow and which are seen most characteristically in the course of pregnancies, or as the result of calculi, hypertrophies of the prostate gland, valvular formations in the urethra, occlusion of the ureter by tuberculous or other strictures, congenital or acquired, and the other occasional conditions well recognized by the urologist.

On the contrary, this entire and quite extensive group is deliberately eliminated from the discussion, which is sharply narrowed to a single remaining type, so rare in comparison with the others as to be almost unique in the literature. Perhaps the best indication of the essential characteristics of this type is the descriptive name, megal-ureter, coined by Caulk three years ago and now more or less commonly adopted. The term immediately suggests a fundamental etiological alliance between the condition and the better known, though no better understood, megal-colon or Hirschsprung's disease, the similarity to which, in fact, was the occasion for the plagiarism of title.

Developmental irregularities of the ureter may affect either the number, the caliber, or the caudal insertion of the tube. Irregularity of number, under which group are included the partial bifurcations, are not uncommon. In a previous communication the writer has recorded a small series of his own cases exhibiting complete duplication of the ureter on one side, and one case exhibiting complete duplication on both sides. Irregularity of insertion is extremely rare and has come under the observation of the writer in only one clinically unimportant instance, both ureteral orifices being situated just to the vesical side of the sphincter, the usual anatomical trigone being absent. Irregularity of caliber, so common from accidental or acquired causes, occupies, when due to congenital defect, an incidence said to be between the other two irregularities. The actual number of recorded cases, however, is exceedingly small. The megal-ureter, so-

*Read before Richmond Academy of Medicine.

called, is the classical representative of this third group.

The assumption that a developmental anomaly underlies the type of ureter to be described requires a reference to the embryologic background of the tube, though it may as well be admitted at the outset that the inquiry has led to no very definite conclusions. The ureter originates as a bud from the Wolffian duct, and, surrounded by a mesodermal cap, which eventually becomes part of the renal parenchyma, grows rapidly upward, sub-dividing to form the pelvis and its calyces. It is at first wide and then becomes narrower. Subsequently, it develops certain constrictions, and between these lie spindle-like enlargements. Originally, it has no musculature, but later muscle fibres appear below and grow upward until they embrace the entire channel. In so complicated a process a slight deviation at the beginning may become of great significance by the time full development is accomplished. It is easy to understand that a faulty implantation of the bud, even to an infinitesimal degree, may ultimately land the outlet of the ureter entirely beyond the bladder; or that two buds on one side will produce two ureters instead of one; or that precocious subdivision of one bud will result in a bifurcated ureter; or that valve-like folds, twists and unusual constrictions, will result in dilatations upon simple

mechanical principles. But, thus far, only a speculative approach has been made to the discovery in this embryologic field of a reasonable explanation of the ureter dilated not because of an obstruction to its accumulating contents but because of some inherent defect in the wall of the tube itself,—in other words, a ureter which was, so to speak, senselessly born dilated.

Clinically considered, the obstructive type of dilatation presents first of all the obstruction itself. In addition, the resulting hydro-ureter is associated with an even more pronounced hydronephrosis, the pelvis dilating to such an extent that it ultimately reduces the parenchyma to a mere shell. Finally, and as a consequence, the function of the kidney soon becomes seriously disturbed, and is often completely destroyed. In sharp contrast, the megalo-ureter exhibits primarily no obstruction, no involvement of the renal pelvis, no destruction of kidney tissue, and no disturbance of function. There is simply a gigantic ureter which for a long time may perform its essential duties so satisfactorily that, if accidentally discovered at this stage, it presents no particular surgical aspects. Such a case has been reported by Ockerblad. On the other hand, the lack of tonicity may gradually become more pronounced until the ureter is unable even to overcome the normal sphincteric ac-



On reader's left is uretero-pyelogram displaying normal ureter and renal pelvis exhibited to establish basis of comparison with the megalo-ureter which is under discussion and which is displayed in the plate on the right. X-Ray work by Dr. F. M. Hodges and Dr. L. O. Snead, Richmond, Va.

tion of the uretero-vesical valve and large retentions will occur, but can be relieved by simple section of the sphincter. Caulk's case was of this type, and both his case and Ockerblad's retained the striking characteristics of undilated pelvis and unimpaired function. Finally, however, stagnation—not so easily controllable—may occur; actual back pressure effects will then begin to involve the pelvis also, the inevitable infection will supervene, and as a result of this combination of secondary circumstances the function of the kidney will become progressively depressed until the situation assumes serious surgical proportions, usually requiring nephrectomy. Such a case is the one now to be reported:

Patient—White, male, single, age 25 when first seen, in August, 1922.

Onset of trouble which brought him under observation was dated seven years previously, when he suffered a violent attack of pain in his left side just above the anterior fourth of the crest of the ilium. This spell lasted about four days, during which time he had constant discomfort and frequent hard

colics, the pain radiating downward to his left testicle and along the inner side of his left leg nearly to the knee. Incidentally, his side became sore to the touch. Much nausea and vomiting accompanied this attack, but no bladder disturbance, no bloody urine, and no fever.

One year later patient, following a spell of measles, had some pain in his testicle and down his leg, but none in his side. Two years after this (1919), he suffered seven typical colics in the course of three weeks and in the succeeding two years had a number of recurrences, which interfered seriously with his work as a medical student and which finally led him to submit to a cystoscopic examination at the hands of a competent urologist in Richmond. This examination disclosed an impassible obstruction in the left ureter about one inch from the bladder. X-ray plates were negative for calculus. Urinalysis was consistently negative, and bladder disturbance was conspicuous by its absence. Subsequent to this examination, the patient had several mild spells and, finally, came under observation of the writer, who, at a cystoscopic investigation in August, 1922, also noted a sharp obstruction in the lower left ureter, through which he was able, however, after much manipulation, to pass a No. 6 stiff bougie for its full length. A month later, when an attempt was made to further dilate this supposed stricture no bougie or catheter of any size could be passed beyond a point about $1\frac{1}{2}$ inches from the bladder.

For two years the patient now had complete relief from pain and was able to proceed with his work until September, 1924, when he had a recurrence, with pain, beginning in his left testicle, running down the inner side of his thigh, and finally extending upward to the renal area, where it became quite severe. At a cystoscopic examination now made, a No. 8 catheter was carried rather easily to the pelvis, encountering obstruction only in the mid-ureter. A steady drip of cloudy urine indicated considerable retention; the catheter was left in position for drainage and frequent irrigations. After two days it was no longer working satisfactorily and was removed. Shortly after the removal of the catheter pain recurred and in the absence of the writer, an emergency cystoscopic was done elsewhere. The pelvis was again evacuated and a pyelogram was attempted but proved a total failure.

The minute details of the subsequent history are too elaborate to justify repetition here. It had now become obvious that the patient, instead of a simple stricture, had a serious grade of retention in his left urinary tract, with infection and sharp depression of function. It appeared desirable to push the case to a conclusion of some sort, but at this stage it was difficult to get the patient to submit to the necessary manipulations. Finally, however, his pain and disability became so considerable that he invited anything promising relief. In March, 1925, therefore, a systematic development of the case was undertaken, and, in the course of a series of cystoscopies then, the data secured, when added to that previously assembled at odd times, presented a situation about as follows:

Obstruction—Ureter occasionally impassable; at other times admitted catheters of considerable size; obstruction usually in lower ureter, but sometimes in mid-ureter.

Function—Absence of function on left; steady climb of function on right until it was showing perfect compensation.

Microscopy—Gross infection on left, where none



Kidney and section of ureter removed at operation.

had been present in earlier years; no infection on right.

Pyelography—Slight dilatation, probably compensatory, on right side, which was otherwise entirely normal. Pyelography on left, at first abortive, owing to unsuspected coiling of catheters in dilated lower ureter; later successful and exhibiting enormous dilatation of ureter and considerable dilatation of pelvis.

Clinical Condition—Increasing pain and disability. Spells of acute retention, which finally were so considerable that distended ureter became not only easily palpable through the rectum and the abdominal wall, but upon one occasion was also clearly visible, presenting an elongated sausage-like bulge upon the left abdomen.

Procedure—Nephrectomy with removal of about one-half of the ureter.

Result—Patient now in perfect health with renal function of 78 per cent.

Operative Specimen—(Reported by Dr. Charles Phillips):

Gross Description—Left kidney and upper 13 cm. of the ureter, received in formalin. The kidney measures 11x6x4.5 cm. The surface is roughened and nodular with many small cysts, which are especially numerous in the lower pole on the anterior surface. The whole is approximately normal in size. The pelvis is dilated into a moderate degree of hydronephrosis. The ureter is 2.5 cm. in diameter just at it leaves the kidney and in a short distance is 3.5 cm. in diameter at its widest point. 1.5 cm. from the pelvis there is a partial stricture from one side. On cut section the average thickness of the parenchyma is about 1.5 cm. and only in three places are there any tubules to be seen running into papillae. There are numerous rather large cyst-like pockets emptying into the main dilated pelvis. The cysts in the lower pole are subcapsular and filled with a sort of gelatinoid material. No tissue that might be called grossly normal is seen. The capsule strips easily. The average thickness of the ureter is .5 mm. The pelvic fat is somewhat increased in amount.

Microscopic Description—Representative sections cut from this kidney, carefully studied, show severe and extensive degenerative changes of the parenchyma, multiple small cysts of probably congenital origin and a greatly dilated pelvis and ureter. Throughout the whole kidney there is now present a marked and severe acute inflammation, practically suppurative in places, on a severe chronic inflammation of long duration. There is great disorganization of all the structure by fibrosis, amyloid degeneration and cloudy swelling. The glomerular region is markedly thinned out and only a few intact glomeruli are seen, most of the rest being almost entirely obliterated by fibrous tissue or amyloid or with considerably thickened capsules. The tubular region is likewise broken up and scarred and many of the tubules are obliterated or show amyloid changes or severe cloudy swelling. Many of the tubules show polynuclear leukocytes in them. There is a marked proliferation of the interstitial tissue throughout. In places this is quite cellular and in others quite fibrous, constituting a chronic interstitial nephritis. There are numerous focal round cell infiltrations scattered about without any regularity. The capsule is thickened somewhat in places. The cysts are filled with a clear gelatinoid substance resembling the colloid of the thyroid gland. The cyst walls are somewhat fibrous, thin, and adjacent structures are much compressed and out of shape. At least one cyst is lined with a regular low cuboidal

epithelium and possibly all of them might have been originally. Tissues of the pelvis and ureter show the same disorganization, acute and chronic inflammation. The general appearance of the whole kidney suggests that the cysts are probably of congenital origin and that the original development of parenchyma was rather good, but which has been infected for so long that the present picture of the kidney proper might easily be due solely to inflammation with resultant degenerations.

Pathological Diagnosis—Acute on a chronic diffuse nephritis, with extensive degenerative changes in a kidney showing multiple small cysts of probable congenital origin, hydronephrosis, hydro-ureter and megalo-ureter.

The writer has admitted already that this case fails to present the undisturbed function and the absence of pelvic involvement characteristic of the true megalo-ureter. He submits the data, however, under the belief that primarily the case was of this unusual congenital type, and that the loss of these characteristics was due to secondary complications developing later in life. Certain points emphasize this conclusion. An inspection of the pyelogram will at once suggest a congenital anomaly to any observer. The fact that upon some occasions nothing could be passed through the ureter, while upon others catheters readily entered, would indicate that no stricture was present, as originally supposed, but that the catheter tips became hung in the large, lobulated, flabby ureteral walls, sometimes in the mid-ureter, but especially near the bladder where there was a definite U-shaped curve with a narrower ureter below and a wide pouch above. As the toneless ureter became less and less able to expel its contents, back-pressure finally began to cause dilatation in the true pelvis also, but, as indicated by Dr. Phillips, this dilatation does not, by a considerable margin, approach the situation which should have been present had the condition been obstructive from the outset. With a ureter of these dimensions in a simple case of hydronephrosis the pelvis should have been of great size and the renal tissues flattened out of existence. As a matter of fact, the pelvis, though dilated, is of only moderate size; it retains its essential anatomic details (orderly arrangement of calyces) and a large amount of renal structure is left. When to the element of increasing back pressure is added the development of gross infection, the disturbance in function is also easily understood. Finally, the age of the patient and his clinical history are highly suggestive, and when this history is closely analyzed it appears to contribute sev-

eral additional points to the presumption that some disorder in his embryologic processes must be charged with responsibility for the gigantic structure of his left urinary tract.

MEDICAL TREATMENT OF SOME OF THE PELVIC DISEASES MOST COMMONLY MET WITH.*

By R. H. WOOLLING, M. D., Pulaski, Va.

The Executive Committee asked me to furnish a paper on "Medical Treatment of Pelvic Diseases." It is manifestly impossible to give the specific treatment of individual pelvic diseases in a paper as short as this must necessarily be in order to conform to the twenty minutes' rule. A better title to these remarks would be "The Medical Treatment of Some of the Pelvic Diseases Most Commonly Met With."

I am going to take a short time in which to mention the general remedial measures resorted to in order to relieve or ameliorate the abnormal pelvic conditions that we are constantly called on to treat; and then proceed with the paper proper.

It is well to remember the rich blood and lymphatic supply of these organs, as well as the fact that any deviation from the normal position either relaxes or stretches too much the ligaments which support them and also the blood vessels, thereby causing a congestion or stasis which lessens the resistance of these organs, thus rendering them more liable to infection and disease and lessening the power to throw off disease when once contracted.

The effect which the changes in the pelvic circulation have, not only on the pelvic organs but on the whole circulatory system, may be appreciated when we recall the fact that, next to the peripheral, the region of the pelvic vessels, with their large venous plexuses, is one of the most important elements in regulating blood distribution and blood pressure.

One of the most important general remedial measures at our command is the production of pelvic hyperemia and pelvic anemia. Arterial hyperemia increases the nutrition of the tissues, stimulates local tissue metabolism and increases the regenerative function. Hyperemia can be produced by warm applications, 95° F. to 105° F., which should be changed often. Hot appli-

cations, 105° to 110°, cause permanent dilatation. Warm and hot applications are used in menstrual colic, for old hard exudates, in the chronic stage of inflammation of the uterus and adnexa, and, locally, in vulvitis and inflammation of the glands of Bartholin. They should not be used in fever, pus, pregnancy and marked bleeding. Hyperemia can be produced by stimulating applications which consist of cool moist cloths, 70° F., covered with a dry towel, and changed only every four or five hours. Stimulating applications at first have the same action as cool ones, but soon the moistened band becomes as warm as the blood and hyperemia or reaction takes place. This warm blood passes from the skin deep down and causes a dilatation of the vessels and an increase flow of blood to the internal genitalia. These applications mildly stimulate tissue change and resorption in the subacute stage of inflammation, such as exudates.

Hyperemia can also be produced by short, cool sitz-baths, 50° to 65° F., and lasting from one to five minutes. This causes a contraction of the peripheral vessels and the vessels of the pelvic organs. After leaving the bath, there is a reactive dilatation of the skin and pelvic vessels, with a reactive flow to the pelvic vessels. This kind of bath is used when we wish an active hyperemia and a stimulation of the motor and secretory function of the uterus, as in amenorrhea, leukorrhea, in patients not too weak; in hypoplasia, in asthenic uteri with metrorrhagia and menorrhagia, in chronic metritis and in subinvolution. It should not be used in acute and subacute inflammations of the genitalia, in pregnancy, and where there is great pain. Hyperemia can also be produced by warm sitz-baths, 90° to 105° F., lasting fifteen to thirty minutes, which causes a flow of blood to the pelvis and its organs, and is used to stimulate resorption and to exert a sedative action. It is indicated in hypoplasia, amenorrhea and scanty menstruation; in spastic dysmenorrhea, in chronic endometritis and in chronic parametritis and perimetritis; in hard exudates after the fever has subsided; also in salpingo-oophoritis when there is much pain without fever and no pus. They are useful in the chronic stage of cystitis, but should not be used in acute gonorrhea, in pregnancy, in menorrhagia or metrorrhagia, or in accumulation of pus in the pelvis.

One of the most effectual means of produc-

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ing hyperemia is by the vaginal douche. Now, a word about the vaginal douche. It has a cleansing effect; you get the action of the medicament in the solution, and, most important of all, the thermic effect. Vaginal douches can accomplish a wonderful amount of good, but, as ordinarily used by patients in the home, are practically useless. The temperature of the solution and the length of time of the application should be governed by the pathological condition present and the effect desired. The hyperemia produced by warm and prolonged vaginal douches on the pelvic organs is of the greatest importance. You bring about an increase in the lymphatic circulation, and resorption of exudates. Warm douches in large amounts are useful in spastic dysmenorrhea and for relief of the colic of endometritis if the adnexa are free. Prolonged hot douches up to 112° F. are used in amenorrhea, in scanty menstruation, in chronic endometritis and metritis and in subinvolution. They should not be used in the presence of fever, in fresh inflammatory processes, or in the presence of pus, such as pyosalpinx. Very hot douches, 120° F., of long duration are used for relief of sclerotic and shrunken bands, associated with misplacement, and for relief of hard firm exudates in the absence of fever.

Anemia can be produced by moist cool applications, 70° F., which must be changed often. They have a depletory influence on the pelvic organs, and are used in acute inflammatory conditions, such as acute perimetritis, parametritis and endometritis. Anemia of the pelvic organs is easily caused by prolonged cool sitz-baths, 50° to 65° F., for five to thirty minutes, which cause vessel contraction. This is useful in bleeding at the climacteric, in congestion of the pelvis with its associated dysmenorrhea and menorrhagia; also in pruritus vulvae, and in vaginismus due to neurotic disturbances. They should not be used in weak and anemic patients, and where there is uterine colic.

Anemia can likewise be produced by tepid sitz-baths, 70° to 85° F., five to fifteen minutes. It has a restful effect and can be safely used in case of weak individuals and those who cannot stand the colder ones. It is also used in inflammation of the uterus and vagina. Anemia is produced by cool douches, 70° F., of short duration, which stimulate the tone of smooth and striped muscles, and is used where

there is a tendency to prolapse, where there is hyperemia and in climacteric bleeding. Hot douches also stimulate the muscle tone if not used too long; therefore, hot douches of short duration stop bleeding, 105° F., and are also used for climacteric bleeding, for menorrhagia, and for the bleeding of uterine atony.

The majority of patients who visit the physician's office because of bone pelvic disease will say that they have a vaginal discharge, or leukorrhea. This may be due, first, to some systemic condition, as is often seen in young girls as the result of chlorosis or anemia. The treatment of this condition consists in correcting the cause by proper systemic treatment, with possibly the addition of cool sitz-baths to improve the tone of the capillaries. Second, this condition may be caused by a congestion or engorgement, usually seen in married women or women who have borne children, and is usually due to some misplacement or cervical tear. It is treated by correcting the cause, attention to the general health and hot astringent douches. Third, this condition may be due to an inflammatory condition. This may be catarrhal, with a serous, sero-purulent or purulent discharge, and contains epithelia and polynuclear leukocytes or pus cells, or it may be gonorrheal in character.

In the catarrhal form the treatment consists of absolute cleanliness, a warm sitz-bath twice daily, and vaginal douches, of a solution of alum or sulphate of zinc or some astringent used twice a day. In the more stubborn cases, use Fergusson's speculum and wash the vagina thoroughly with a one per cent solution of lysol. Then use through the speculum pure pyroligneous acid, or a one per cent solution of bichloride mercury. Then dry thoroughly with cotton and dust with aristol, or alum and boric acid, one to three or four parts. If this is not effectual, use ichthyol-glycerine or tannic acid and glycerine. After that use twice a day some mild cleansing solution, as boric acid or acetate of alum. If this condition is due to cervical erosion or catarrh, local applications are not sufficient. Pure carbolic acid should be applied for a few seconds to the entire erosion area. Pure tincture iodine is then applied to the mucosa and to the vaginal vault. After this boroglyceride is poured into the vagina and the vagina packed with gauze which is allowed to remain twenty-four hours; then astringent vaginal douches are used twice

daily. The carbolic acid is applied twice a week and the iodine three times a week. These applications destroy the ciliated epithelium, which is necessary to heal the erosion. As the erosion heals, the squamous epithelium is seen to grow in from the edges. If this is too slow, it may be stimulated by 1 to 3 per cent silver nitrate solution once or twice a week. In stubborn cases it may be necessary to use chloride of zinc or pyroligneous acid.

In dealing with cervical catarrh, the treatment should be conservative, and carried out almost entirely in the vagina and not within the cervix. The canal should be gently cleansed, then boroglyceride poured in the vagina, and the fornices gently packed with gauze which is allowed to remain for twenty-four hours, after which it is taken out and a vaginal douche given. This is repeated two or three times a week.

In catarrhal endometritis the treatment is very much the same as in cervical catarrh. The sitz-baths serve well in these cases. Vaginal douches, beginning with tepid water and using it a little cooler each time, act well and are safer than dilating the cervix and irrigating with antiseptics, as advocated by some. This procedure, however, is necessary in some cases. In stubborn cases of catarrhal endometritis associated with marked displacement, especially if the uterus is large, surgery has to be resorted to.

True inflammatory endometritis is almost invariably due to bacteria. Here you find the streptococci, staphylococci, sometimes the colon bacillus and the saprophytic bacteria which grow on dead tissue. In this condition it is necessary to put the patient to bed, giving especial attention to the secretions and diet. Apply ice to abdomen, and use short, frequent hot vaginal douches of one-half per cent lysol or two per cent mercurochrome. It is sometimes necessary to use intrauterine douches with a double running catheter. Give ergot internally. If septic endometritis spreads to the parametrium, tubes, peritoneum, or into the general circulation, it is often necessary to promptly resort to surgery.

The treatment of acute metritis is like that of acute endometritis, but more prolonged. In post-partum or abortion cases, intrauterine irrigation may be carefully done, but this does not apply to gonorrheal metritis unless the latter is post-partum.

A large per cent of cases of acute parametritis end in suppuration. The treatment consists in aiding resorption and, if this fails, promoting suppuration, which is relieved by vaginal incision. Such cases of parametritis as are associated with high temperature are those that also have associated with them salpingo-oophoritis and pelvic peritonitis. Even in these cases conservative treatment often accomplishes much. The treatment consists of rest in bed, fluid diet, attention to the bowels, the ice-bag or ice-coil, and the usual antipyretic treatment should be instituted. Cold or tepid vaginal douches should be given several times daily.

The treatment of peritonitis with no collection of fluid in the peritoneal cavity consists of free purgation by salines. Large quantities of fluids are administered by mouth, rectum, under the skin, or intravenously. The cleansing of the bowels should be followed by starvation diet and the intestines kept at rest by opiates (Bandler). The head of the bed should be kept elevated. "In more diffuse peritonitis with general abdominal distention, this must be kept up until the inflammatory process and the exudates have become localized. In diffuse cases give five per cent solution of glucose by rectum or intravenously. In the subacute stage, cold cloths, changed every four or five hours, should be applied and the bowels kept open by enemata. In the chronic stage, use warm and hot sitz-baths. Later on, if exudates are left and there is not elevation of temperature, loose packing of the fornices with glycerine and gauze may be done." In old cases with adhesions, prolonged hot vaginal douches may be given, with mechanical stretching of the adhesions or bands. The end result of this condition, whether originally subacute or acute, is adhesions, and if much pain persists, surgery is often necessary.

REFERENCES.

Bandler.
Ashton.

ETIOLOGY AND DIAGNOSIS OF ACUTE PELVIC DISEASES.*

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In considering the etiology and diagnosis of acute pelvic diseases it is necessary, first, to classify or enumerate the conditions that prop-

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erly belong to this subject. Stein (*L. I. Med. Jour.*, June, 1924) observes that acute pelvic lesions may be either mechanical or inflammatory. Under mechanical or traumatic, he considers: a.—perforation of uterus; b.—ruptured ectopic pregnancy; c.—hemorrhage or rupture of ovarian cyst; d.—ovarian cyst with twisted pedicle; e.—incarceration of fibroid; f.—vaginal or bladder hemorrhage; g.—ureteral stone; h.—strangulated hernia. Under the inflammatory conditions, he considers: a.—acute salpingitis; b.—acute exacerbation of chronic salpingitis; c.—pelvic peritonitis.

As both etiology and diagnosis of some of these conditions are more or less obvious, I shall consider only the more important ones.

Perforation of the uterus is met with not infrequently. The predisposing causes of uterine rupture have been enumerated by Hellman, thus: Cesarean scar; fatty infiltration of the muscle in the obese; over-distention; adherent placenta, sepsis, or eclampsia in previous pregnancies; uterine diseases, malformations or tumors; cachexia; interstitial pregnancy; adhesions of the uterus to surrounding tissues; dystocia. The direct causes are: external violence; obstetrical operations, and violent contractions of the uterus with formation of Bandl ring.

The uterus may rupture after only a few hours of moderately severe pains, and I wish especially to stress the importance of the Cesarean scar. A case illustrating this factor recently came under my observation. The mother, aged forty, had had five normal deliveries. The sixth pregnancy was terminated by Cesarean section on account of placenta previa. Pregnancy occurred again and patient went to term with no untoward symptoms. As this mother had had five normal deliveries and was in excellent physical condition, it was decided to leave her alone and let labor come on in a natural way. Labor pains came on naturally and, after about two hours of moderately severe contractions, the uterus suddenly ruptured and in thirty minutes patient was dead—before surgical aid could be given. Post-mortem examination revealed the head of the child and the placenta free in the abdominal cavity.

I do not believe we are justified in advocating, once a Cesarean section, always a Cesarean section, but I do believe that in every case where pregnancy follows a Cesarean section,

the patient should be placed in a hospital when labor comes on and kept under the closest observation, being ready for immediate operation should rupture occur.

Diagnosis is made by sudden, severe, sharp pains, shock, evidences of internal hemorrhage, altered shape of the abdomen, and a slipping away of the presenting part. Keller (*Gynec. and Obst.*, February-March, 1921), however, lays stress on the insignificance of the symptoms in certain cases. In one case of ruptured lower segment, there were no symptoms until a retro-peritoneal hematoma became infected. In eleven out of twenty-two cases rupture occurred spontaneously in maternity under close supervision.

Ruptured Ectopic Pregnancy.—There are many theories and hypotheses put forth to explain the causation of extra-uterine pregnancy. This is undoubtedly due to the fact that the physiology of ovulation, implantation and development is not yet entirely understood. It was originally thought that the ciliary current of the mucous membrane of the tubes and that of the uterus was in opposite directions, that of the tubes being directed toward the uterus and that of the uterus upward toward the tubes, thus forming a natural meeting place of sperm and ovum at the fundus. It was considered abnormal for spermatozoa to gain entrance into the tubes; but, should this accidentally happen, then tubal pregnancy was apt to occur. We now know that the ciliary current of the uterus as well as that of the tubes is downward, and that the spermatozoa readily stem this current, and it seems quite probable, if not certain, that impregnation of the tubes is common, if not the regular method.

Deaver says, "Once fertilization has taken place, development begins at once, and whatever delays the ovum in its passage to the uterus, putting out anchoring villi, in the presence of a suitable soil, renders imminent the occurrence of an extra-uterine gestation."

The mechanical influences which may interfere with the prompt passage of the ovum into the uterus are malformation of the tubes, obstruction from within or without, inflammation, and excessive size of the ovum itself. Of these, the inflammatory factor is the most important.

The symptoms of ruptured ectopic pregnancy are usually frank and outspoken, and

present a fairly classical picture of this condition.

A careful history and thorough physical examination are most important from the standpoint of diagnosis. Ruptured ectopic pregnancy is usually ushered in by severe lancinating, agonizing pain in the hypogastrium and the opposite side of the pelvis, followed by shock and collapse, with symptoms of internal hemorrhage. Physical examination will reveal, in the majority of cases, the presence of an enlarged tube, hypertrophy of the uterus, with softening of the cervix, and the presence of free blood in the pelvis, or a broad ligament hematoma. Pain, hemorrhage, and shock should be held in mind as the three most cardinal symptoms.

Acute salpingitis is nearly always secondary to infection of the uterus or peritoneum. According to Polak the infecting organisms may reach the tubes by four different routes:

1. From the interior of the uterus, as in acute gonorrheal infection of the endometrium.
2. From the peritoneal cavity by way of the abdominal ostium, as in streptococcic and staphylococcic cellulitis and peritonitis, following childbirth and abortion.
3. From the tube wall, as in appendicular and intestinal perforations.
4. And, finally, through the blood and lymph channels, as in the case of primary tuberculous salpingitis.

Sepsis and gonorrhea are the most common causes of tubal inflammation, the gonococcus being the organism most frequently met with, and producing from 40 to 50 per cent of all tubal infections.

The diagnosis is based on the history, symptoms, physical signs, and microscopic examination (Ashton). In the history, we are usually able to trace the affection back to a septic or gonorrheal infection, and thus establish the diagnosis. Considerable difficulty is sometimes encountered in differentiating a right-sided tubal inflammation from acute appendicitis. This is particularly true if the appendix is adherent in the pelvis, or if a right salpingitis and appendicitis co-exist.

Acute pelvic peritonitis may truly be considered a pathological entity, because the peritoneum is involved in almost all inflammations of the uterus, parametrium, tubes and ovaries as an extension and complication of the original inflammation. It is practically always

secondary to infections of the uterus, tubes, ovaries, bladder, pelvic cellular tissues, intestines or vermiform appendix.

Gonorrhea and sepsis again play the most important causative role. Uncleanliness, faulty technique, abrasions and traumatism following operations, labor, and abortions also play their part in the causation of this malady.

The diagnosis, according to Polak, is based on certain symptoms, common to all forms of peritonitis, viz., temperature, tenderness, tension or rigidity, abdominal sensitiveness, tympany, intestinal paresis and gastric irritation, and they differ only in their intensity and location.

CLINICAL PATHOLOGY AS APPLIED TO PELVIC DISEASES.*

By LINWOOD D. KEYSER, M. D., M. S. in Pathology,
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Clinical pathology is an outstanding product of the twentieth century and its general application has reached its highest development in our own generation. The subject of this paper comprehends the whole field of gynecologic pathology, and to treat it in detail is obviously impossible. Therefore, I have taken the liberty of choosing certain phases of pelvic disease for discussion.

MENSTRUAL DISTURBANCES.

The disorders of menstruation are manifold and no two classifications are in agreement. The anatomical or mechanical types associated with cervical stenosis, tight cicatricial internal os, retroversion and acute anteversion, uterine hypoplasia, hyperplasia of the endometrium, and catarrhal or venereal infection, are recognized. The functional types are less well understood on a pathologic basis. Thus, we may find on examination a normal disposition and development of the pelvic organs associated with menstrual pains. Circulatory disturbances, dysfunction of the sympathetic nervous system, and particularly a dyscrasia of the functions of the endocrine glands are brought forward to explain the process. Much has been done in a clinical and experimental way to show the relation of the ovaries, the hypophysis, and the thyroid to the functional groups, but on the whole the knowledge obtained has been inconclusive and the results

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of endocrine therapy have been disappointing. The condition of small cystic degeneration or excessive atresia of the ovarian follicles does seem to be associated with dysmenorrhea very frequently, especially in younger women and the administration of ovarian substance or corpus luteum not infrequently gives relief.

In the disorders of menstruation which are unassociated with inflammation or neoplasms, the clinical pathologist has little aid to offer. Especially is this true of the functional types. However, we must look to the future in experimental medicine to bring about the isolation of the ovarian hormones and their pharmacologic study on a basis similar to that in which insulin, thyroxin, pituitrin, and adrenalin have been investigated. This may do much to clarify our minds in regard to a much misunderstood and irrationally treated disease.

CONDITIONS ASSOCIATED WITH PREGNANCY.

In the toxemias of pregnancy the clinical pathologist may be of great aid in both diagnosis and treatment. His function will be to follow the blood and urinary chemical and morphologic findings. In pernicious vomiting, the occurrence of a high ammonia coefficient in the urine, with usually a normal carbon-dioxide combining power in the blood indicates a peculiar form of acidosis; while the oliguria with albumin and casts may be of significance. In acute yellow atrophy, nephritic, pre-eclamptic, and eclamptic toxemias, signs of renal and hepatic malfunction can be checked to some extent through the clinical laboratory. Thus, in acute yellow atrophy, the total nitrogen of the blood is increased; there is acidosis; the urine shows albumin; leucin and tyrosin crystals are present, and the small quantity of urine passed may be of import. There is frequently a small amount of acetone present and the nitrogen partition may show a diminution in the urea with an elevation of the ammonia coefficient. In differentiating nephritic and pre-eclamptic toxemias a high non-protein nitrogen in the blood will favor the nephritis. Oliguria in marked degrees is more usual in pre-eclamptic toxemia. In eclampsia renal insufficiency is frequently acute and striking. The albumin may mount as high as 40 gm. per liter, while as much as 10 gm. is frequently present. Blood cells, hemoglobin, and casts are also abundant.

In the autopsy room the study of the kidneys with their glomerulo-necrotic changes, of the liver with the mid-zonal necroses of yellow atrophy, and the hemorrhagic hepatitis with periportal necrosis in eclampsia, may be valuable in demonstration. For the future remains the task of isolating the toxins productive of these lesions.

The pathology of abortion, miscarriage, and premature labor may be briefly mentioned. In the first half of gestation, we find that developmental anomalies, either in the uterus or in the embryo itself, misplacements such as extreme retroversion, tumors, changes in the appendages of the ovum (such as excessive torsion of the cord, hydramnios, or hydatidi—form mole), interfere with the development of the fetus, lead to its death, and precipitate expulsion. Inflammation in the decidua, especially those forms known as hypertrophic decidual endometritis, atrophy of the decidua, chronic glandular hyperplasia, and acute deciduitis are responsible for perhaps 70 per cent of early abortions. Later in pregnancy, diseases of the placenta may lead to the same result. An obliterating endarteritis in the vessels of the chorionic villi, or the formation of abundant red or white infarcts may interfere with fetal nutrition to such an extent as to bring about death. Placenta previa, low implantation of the placenta, velamentous insertion of the cord, and premature separation of the placenta may likewise bring about disastrous circulatory changes with abortion as a sequel. Syphilis probably causes most of the premature labors or late miscarriages, its presence in the mother seldom interfering with pregnancy in the early months. Besides this, acute infectious diseases, toxemias, malnutrition, or progressive systemic disease of any kind may be predisposing factors. It should be the function of the clinical pathologist to examine carefully all premature uterine specimens, to study the placenta for infarcts, cysts, tumors, calcification, and inflammation. Placental tuberculosis is rare. Syphilis is common and the gross and microscopic changes rather characteristic. There is a dull, greasy, pale appearance, it is swollen and enlarged. The villi when teased out present a club-shaped appearance, and have lost their arborescence. The blood vessels have diminished in size and number. There is a proliferation of stroma cells. The fetus, if dead, should be carefully

examined, looking for the dry, drawn, grayish appearance of the skin, and the thickening of the soles and feet, often with pemphigoid vesicles. The lungs may show pneumonia alba, the liver a cirrhotic enlargement with areas of round cell infiltration, together with large dilated capillaries, the so-called "blood islands." The spleen and pancreas show interstitial fibrosis. Most characteristic is the osteochondritis occurring at the epiphyseal and diaphyseal juncture in the long bones—Wegner's bone disease. The line of junction—Guerin's line—is normally about 1 mm. in width and the line of calcification beyond it is smooth, whereas, in syphilis the line of calcification is jagged, due to irregularity in the deposition of lime salts, and Guerin's line is 2 to 3 mm. in width.

A study of the embryo, of the membranes, and of the decidua for changes mentioned above is equally important.

In the consideration of ectopic pregnancy the pathologist is frequently called upon to give an opinion. Do we deal in the individual case with ruptured tubal pregnancy, inflammatory hematosalpinx, tubal abortion, ruptured bleeding ovarian follicle, or a bleeding ovarian or tubal neoplasm? In extra-uterine pregnancy there is usually little or no decidual reaction in the tube or in the ovary, the ovum imbedding itself directly into the connective tissue or muscle of the wall. A pseudo-decidua capsularis envelops the ovum. In the walls of the ruptured tube can usually be found the tell-tale chorionic villi of the trophoblast, even when the ovum or fetus itself has been lost in the mass of blood which is found. A hematosalpinx of inflammatory origin may occur with rupture, as in a case recently seen. However, this is rare. Hematosalpinx may also occasionally result from gynatresia, but is, under such conditions, easily recognizable from the concomitant hematometra or hematocolpos. The uterine decidual formation which takes place with ectopic gestation may be of diagnostic import. Frequently it is cast off in shreds or as a complete sac at the time of bleeding. Some observers in cases of doubt as to the existence of ectopic pregnancy curette the uterus. The finding of uterine decidua in a degree of development which approximates that of normal pregnancy, tends to confirm the diagnosis that pregnancy exists outside the tube.

The surgical pathology of chorionic disease

is a matter of the gravest importance, especially in connection with hydatidiform mole and chorio-epithelioma. Hydatidiform mole occurs usually in the first three months of pregnancy. The uterus undergoes greater enlargement than usual. The embryo is atrophic, undeveloped, and finally undergoes dissolution. The chorionic villi undergo intense hypertrophy. The syncytium and Langhans' cells proliferate to marked degree, penetrating Nitabuch's fibrin layer of the placenta, going deep into the decidua and not infrequently into the uterine musculature. The blood vessels of the terminal villi degenerate and disappear and the stroma degenerates, so that in advanced cases its cells become necrotic and the nuclei lose their staining properties. The hypertrophic villi at times may invade the uterine wall to such an extent as to lead to perforation and fatal intra-abdominal hemorrhage. The association of ovarian lutein cystoma with hydatidiform mole is often emphasized. The ovaries may likewise at times be the seat of chronic small cystic disease. The lutein cysts undergo involution changes after expulsion of the mole. Vulval or vaginal tumors are often noted. Whether these are true metastases from the tumor or they occur as a result of placental transportation of particles of a benign growth is still *sub judice*. On local removal, however, they seem to be cured.

Chorio-epithelioma is a malignant proliferation of the embryonic trophoblast. It may develop after full-term labor, abortion, or hydatidiform mole. One-third to one-half of the cases are preceded by hydatidiform mole, and it may be said that about 5 per cent of hydatidiform moles will be followed by chorio-epithelioma. The proliferation of Langhans' cells and syncytium is extensive and the invasion of the uterine tissue excessive. Metastases to the lung, bones, parametrial tissues, and vulva are early and prominent features. Histologically, the differentiation of the tissue obtained by curettage from that of hydatidiform mole or normal placental trophoblast is difficult and by some authors its possibility is denied. Ewing, however, holds that microscopic differentiation is possible in the majority of cases. The excess of syncytial tissue, with absence of well-formed villi, and wide separation of the epithelial elements, the formation of bands of acidophilic syncytium commingled in disorderly relations with islands of actively

growing Langhans' cells help to diagnose chorio-carcinoma. The syncytium may appear in abundant isolated, elongated, and coherent buds resembling malignant moles, or it may form diffuse sheets with large vesicular nuclei and resemble giant squamous epithelium. The tissue is extremely hemorrhagic and blood islands are profuse. Another group of chorio-epitheliomas to which Ewing gives the name "syncytioma" presents the picture of invasion of the uterine wall by many large or giant acidophile cells of the general type of syncytial wandering cells. On the whole, the examination of curettings in cases of this type cannot be entirely relied upon to give the diagnosis. The clinical picture of recurrent bleeding, especially after curettage with the finding of excessive trophoblastic elements is the criterion which makes the surgeon decide upon radical operative interference.

UTERINE DISEASES AND THE STUDY OF CURETTINGS.

We can only touch upon the various phases of clinical pathology as applied to uterine disease. Endometritis, interstitial, hyperplastic polypoid, and infectious, are well recognized. Infectious endometritis and cervicitis, although more frequently due to gonorrhea, are not solely due to this cause. The demonstration of the gonococcus, especially in smears, is very infrequent in the chronic cases. In chronic leucorrhea with definite evidence of gonorrheal inflammation in the tubes, we find the gonococcus only occasionally. Myomata of the uterus are usually diagnosed by bimanual palpation, although the microscope may help us in defining a submucous myoma which is causing bleeding and which is frequently not palpated. Sarcoma can often be demonstrated in curettings. It may originate in myomatous degeneration or in the submucous uterine tissue. Usually the diagnosis is made after the uterus has been removed and sections of the tissue made. The clinical appearance of ascites with myomata in the uterus is very suggestive of malignant change.

Cancer of the uterus, both in cervical and fundic location, is usually demonstrated in the tissues removed at biopsy. In spite of the warning to the contrary, the gynecologist still incises cancerous tissue for obtaining diagnostic specimens more frequently than do surgeons who deal with other parts of the body. One or

two general points in diagnosis may be emphasized. Epithelioma is not often found in an eroded cystic cervix or in the cervix of a prolapsed sclerotic uterus. Again, if the cervix has numerous cysts, it is almost certain not to be cancerous, but one should be on the lookout for adenomyoma of the uterus, particularly if the cysts are associated with a polypoid endometrium. When uterine curettings are examined in the fresh state and are found to be smooth, reddish or brownish, and glistening, the condition is practically always benign. On the other hand, if the scrapings are whitish, or grayish and granular, or sometimes resemble brain tissue, the condition is practically always malignant. Pyometra is usually associated with malignant disease.

TUBO-OVARIAN INFLAMMATIONS.

Tuberculosis and syphilis in the uterus and vagina as primary processes are extremely rare. Tuberculous endometritis occurs occasionally in association with tubal tuberculosis, and under such circumstances may occasionally be diagnosable from curettings. It is well known that tuberculous tubes are practically always open, and gonorrheal tubes are practically always closed. It is also well known that sticking a needle in the little bodies, which are often found on the serosa of the fallopian tubes, will usually indicate whether one is dealing with tuberculosis or simple inflammatory cysts. If these little bodies collapse, they are inflammatory; if not, they are tuberculous.

If the pathologist receives a mass from an ovary or tube filled with a whitish putty-like material, a very simple test will show whether the mass is a dermoid cyst or the end-result of a tuberculous process. Broders was the first to demonstrate this and feels it very satisfactory. If cold water is allowed to run over some of the substance held in the gloved hand and it washes off, the process is practically always tuberculous; if it sticks to the fingers, the substance is usually the product of a dermoid cyst. The substance that washes off contains a large amount of calcium carbonate, while that which sticks is made up for the most part of sebaceous material. If a careful microscopic examination is made of the walls of the sac, which contains the substance that washes off easily, definite evidence of tuberculosis will be demonstrated in most instances.

Tumors in the tubes of primary origin are

very rare. Carcinoma, chorio-epithelioma, mucous polyps, papilloma, fibroma, fibromyoma, sarcoma, and endothelioma are occasionally encountered.

ADENOMYOMATA.

Adenomyomata are extra-luminal inclusions of endometrial-like epithelium surrounded by myomatous tissue. The work of Cullen, Meyer, Opitz and others has led us to believe that they are developed from and are connected with the glands of the uterine mucosa. Sampson, in 1921, demonstrated that the histogenesis of extra-uterine adenomyomata may take place from the retrograde displacement of uterine epithelium at the time of menstruation, with subsequent implantation in the various parts of the female pelvis, where such growths have been described. He also showed that, while such growths are essentially benign, they may and frequently do show invasive tendencies. Thus the not infrequent finding of adenomyoma in the recto-vaginal septum, the round, and broad ligaments, the tubes and other parts of the pelvis, is explained. Implantation in the ovaries gives rise to the formerly much misunderstood and much discussed chocolate and tarry cysts. At each menstrual period the epithelial lining gives rise to the transudation of blood, with the formation of included bloody fluid in the glandular structure. This accounts for the characteristic pain, which is so significant in diagnosis. In the uterus itself it has been shown that adenomyomata may originate by growing directly from the endometrium, or the uterus may be invaded by implants that have occurred on the serous surface of the organ. The histologic diagnosis of adenomyoma presents no difficulty, the ectopic myomatous tissue, the included endometrial-like tissue and the content in old menstrual blood making the picture clear.

OVARIAN TUMORS.

No field of pathology requires more skill and experience in gross and microscopic diagnosis and is more misunderstood by perhaps the majority of pelvic surgeons than the study of ovarian neoplasms. It would be futile at this time to elaborate on the various classifications that have been proposed, or the histologic differences of the various types. Of the simple cysts, non-proliferating in type, we may mention the follicle cysts—most of which are mono-

locular, filled with a thin amber fluid, and containing no epithelial lining. From the thecal cells may develop a lining with lutein-like cells. These are to be differentiated from true corpus luteum cysts, which are surrounded by a thicker layer of lutein cells, this layer being arranged in wavy fashion and the cell elements being larger. Cystadenomata are essentially multilocular in almost all instances. Pseudomucinous cysts are filled with a gelatinous or mucin-like fluid, are usually unilateral, rarely develop in the folds of the broad ligament, and tend to have well-formed pedicles. They are lined with high non-ciliated columnar or cylindric epithelium, and papillary outgrowth from the lining epithelium is comparatively rare. Carcinomatous degeneration is very rare but should be borne in mind. Spilling of the contents into the abdomen is attended with little danger of implantation, however rarely this does occur, these cells continuing to secrete pseudo-mucin and giving rise to a condition to which the name "pseudo-myxoma peritonei" has been given.

Serous cystadenomata are usually multilocular, the number of locules, however, being less than in the pseudomucinous variety. They are filled with a clear, yellowish serous fluid, extremely rich in albumin, but free from pseudo-mucin. They are lined with low columnar epithelium, usually ciliated. Most of them show a papillary proliferation of the lining epithelium, which may appear either on the inside or the exterior of the cyst, depending on the direction of growth. Serous cystadenomata tend to grow in both ovaries, are not apt to be supplied with good pedicles, and may grow into the broad ligament. On rupture, seed implantation of the papillary excrescences may occur anywhere in the peritoneal cavity with subsequent production of ascites, which may become prodigious.

Carcinoma in the ovaries may develop as a primary solid tumor of high malignancy or a cystic primary growth. Most of them, however, result from malignant change in benign papillary serous cystadenoma. The appearance of malignant cystadenoma so closely resembles the benign variety that microscopic differentiation is difficult at times. The contents of the malignant cysts are more apt to be bloody. The pattern of growth is more arborescent and distorted, like uterine adenocarcinoma. The disorderly and extreme hyperplasia of the epi-

thelial elements which usually contain vesicular nuclei, with large prominent nucleoli, helps to make the picture clear. It is best to treat all papillary cystadenomata of the ovary as potentially malignant and always to remember that the other ovary is also very likely involved.

The origin of implantation cysts from the endometrium has been mentioned as a form of adenomyoma. We might go further and dwell at length on the benign ovarian dermoids, the malignant teratomas, and the many interesting theories of histogenesis connected therewith. The benign fibromas, the sarcomas, the rare hypernephroma, the metastatic tumors, often from organs so remote as the stomach and breast, such as is illustrated by the tumor of Krukenberg, could attract our attention. However, enough has been said of specific pathology.

It has been my purpose in this cursory outline to emphasize a few practical points which we, as clinicians and surgeons, should carry with us in dealing with the pathology of pelvic disease.

One word, in closing, with regard to the surgeon's attitude toward the pathologist. The man in the laboratory can and should only diagnose what he sees microscopically and grossly. If he leans too heavily on the clinical findings, he is likely to be biased. It is important above all that he know the location of the tissue. After he has made a tentative diagnosis from tissue, chemical, or bacteriologic study, then the history may be carefully studied, and the final decision made from a co-operative clinico-pathologic correlation of the two.

417 Shenandoah Life Building.

THE USE OF X-RAY AND ULTRA VIOLET LIGHT IN THE TREATMENT OF NON-MALIGNANT CONDITIONS OF THE SKIN.*

By THOMAS WHITEHEAD MURRELL, M. D., Richmond, Va.

In this paper it is the intention to take up only a few phases of the subject suggested by the title.

However natural to the writer, the dermatological viewpoint is the only logical approach to this subject. As an attorney for actinic therapy, one may name a host of conditions which may receive some benefit from X-ray,

radium or ultra violet light. But it is not enough for a remedy to be helpful; it must be proven to be more helpful than other measures before it can be considered the first means of therapy in a given disease. For instance, it is possible that X-ray would in some measure relieve the itching of scabies, yet he who would advise it in preference to unguentum sulphuris would not only be fanatical, but criminally so.

No agent yet discovered is so protean in power and virtue as to make it an exclusive agent in treatment. The X-ray is the single greatest treatment which we have, and the one most applicable in varying and different conditions. It is well, therefore, to guard it from the reproach which will come if used routinely in dermatologic diseases.

May the writer at this point arise to a question of personal privilege to state this argument is not an attack or a slur on the specialty of roentgenology. Personally, he believes the time will come when non-malignant skin conditions will not be ragrded as part of the working field of the specialist in X-ray, nor, on the other hand, will the malignant conditions of the metastasizing type be in the working field of the dermatologist.

Malignancy has no medical background. It is a part of the domain of surgery and its mandatory specialties. There is no prognosis in squamous carcinoma in which the cosmetic result is in any way a determining factor. With such cancer, it is kill or be killed, and nothing else matters.

With the non-malignant conditions there is an entirely different state of affairs. Most, if not all, of these conditions have a medical background, their treatment demanding more or less of the knowledge of internal medicine. Most of them have no effect on longevity, rather, they are pests to make life miserable and disfigure the little beauty, which is the average human heritage. Cosmetic results are in this field all important. Telangiectasis and scarring or even a slow healing burn may be of no matter in a cancer, provided the cancer is killed. Such a result in acne or eczema would be totally unforgiven, substituting as it would a permanent injury for a transient condition.

Such facts as these, and the deductions made from them, make for a variance in the technique in the two specialties, a variation in the

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size and power of machinery used, as well as a variation in viewpoint. Cosmetic sanctity, so ingrained in the dermatologist may well lead to timidity in facing the surgical situation of cancer. On the other hand, the ruthless attitude necessary in cancer is not the mood to approach an acne or eczema.

It would be a matter of great time and work to compile the views of different men. It would be unfair, for instance, to take McKee's book on X-ray and Radium Therapy as a guide to solving our problem since it is purely what the title indicates, for this author uses, if he does not actually recommend X-ray in ordinary rhus poisoning. On the other hand, any dermatological text-book prior to 1916 will be of no benefit since there the X-ray will be neglected.

Fortunately, there is one man who seems to combine more than any one else, perhaps, the two viewpoints, Dr. W. A. Pusey, of Chicago. I think any dermatologist will rest his case with him, and the roentgenologist also, since Dr. Pusey is a pioneer worker in X-ray. His text-book printed in 1924 has been thoroughly covered, and the following extract is taken from it:

"The changes produced by X-rays upon living tissues and upon bacteria may be briefly summarized as follows:

1. They cause atrophy of the appendages of the skin.

2. They have a destructive action upon organisms in living tissues.

3. They have a peculiar effect upon the nutrition of the living cells, producing in their less intense action a stimulation of the metabolism of the tissues, which, when their effect is greater, may go on to the point of the disorganization of the cells and their destruction.

4. This destructive action upon living cells destroys certain diseased cells before it destroys the more resistant healthy cells of the stroma.

5. They have an anodyne effect.

From the foregoing, it may be deduced that X-rays have possible indications in the following groups of affections:

1. Conditions where it is desired to remove hair—(a) hypertrichosis, (b) sycosis, (c) favus, (d) tinea tonsurans, (e) tinea barbae or tinea sycosis.

2. Where it is desired to cause atrophy or diminution in size or functional activity of

the sebaceous glands—(a) comedo, (b) acne, (c) acne rosacea, (d) lupus erythematosus (?), (e) seborrhea.

3. Where it is desired to cause atrophy or diminution in the functional activity of the sweat glands—hyperidrosis.

4. It is possible that X-rays might be of use also where one wanted to cause exfoliation of the nail substance.

5. Their destructive effect upon bacteria in tissues, of course, comes into play in a number of the affections in which their use is suggested above.

6. Their stimulating effect upon the metabolism of the skin offers a wide field of application. It is probably this effect that explains the success that has followed their use in chronic indurated eczema, lupus erythematosus, lichen planus, psoriasis.

7. Their power of causing the destruction of tissues of low resistance without the destruction of the healthy stroma is the theoretical indication for their use in various malignant diseases.

8. Their anodyne effect comes into play in the treatment of painful malignant and inflammatory conditions, in neuralgias, and in itching dermatoses.

It is manifest from the foregoing summary of the therapeutic indications for X-rays that their field of application in dermatology is very extensive, and, as a matter of fact, this is true. It is hardly too much to say that roentgenotherapy is the most widely useful addition to the treatment of skin diseases which has been made."

These are the theoretical conclusions under the heading X-ray Therapy. Now the text of the diseases has been examined to see how far X-ray treatment in Dr. Pusey's judgment will come under one of three heads:

1. Cases where X-ray is the only treatment necessary, and where it is the best or indicated remedy. These are:

Tinea tonsurans; tinea sycosis; blastomycosis; symmetrical keratoderma of the extremities; keratosis senilis; multiple warts—particularly plantar type; mycosis fungoides; hyperidrosis; sycosis vulgaris; acne keloid.

Two of this group, mycosis fungoides and blastomycosis, are usually treated at the same time with heavy doses of the iodides.

2. Cases where it is exceedingly valuable and only second to one other remedy:

Lupus vulgaris—first choice photo-therapy;
Lupus erythematosus—first choice photo-therapy.

(Here he gives X-ray first choice in closing draining sinuses of scrofuloderma).

Pigmented nevus—first choice C O₂ snow;

Vascular nevus—first choice radium;

Keloid—first choice radium.

3. Cases where, while not the only treatment, yet should be included as a part of the indicated treatment:

Acne;

Lichen planus.

4. Diseases where certain phases of the disease are frequently best met with X-ray:

Eczema;

Psoriasis;

Neuro-dermatitis.

Of course all this is only Dr. Pusey's opinion, but being so competent to judge, it may be accepted as close to the fact. To the writer this is so, since it conforms, not only with his own experience, but with the general idea gathered from the dermatological literature and conversations of other men in this work.

No doubt he leaves out much. For instance, X-ray is not mentioned in carbuncle, though our local roentgenologists have many brilliant cases to their credit with this trouble.

If Dr. Pusey's conclusions are true, certain other conclusions become obvious. As with other therapeutic agents that have proven their worth, one would surely be open to criticism if he used some of the lesser remedies in heart conditions, because he personally was not able to obtain digitalis, provided digitalis could be obtained a few blocks away.

In these cases where X-ray or radium is the indicated remedy, it is not fair to the patient not to give him his chance for a more certain and speedy cure.

On the other hand, if these are indications and medical conditions to be met, it is not fair to put all the eggs into one therapeutic basket and to rest the case at this point.

The greatly increased use of the X-ray by dermatologists at large is mainly due to the standardization of the indirect technique given to the world by McKee, Remer and Weatherbee—the now familiar formula of

MaXVXT

—(?) 1 skin unit, a point slightly below
DXD
the erythema or point of X-ray skin damage.

The lack of such a standardization is the trouble with ultra violet light. Most statements made as to its power are of little value since it represents an individual technique and experience. There are two kinds of ultra violet machines. The air-cooled lamp for diffuse raying is perhaps of more general value. The water cooled or Kromayer lamp is the type of photo-therapy referred to by Pusey when speaking of photo-therapy used in lupus vulgaris and nevus. With this last the writer has had no personal experience.

Four years' use of the air-cooled lamp has proven its value beyond question as a stimulant. Judged by results obtained by other methods, it is the indicated remedy in alopecia areata and ordinary scalp stimulation. It is indicated as a part of the treatment of leg ulcers and the ulceration of erythema indurata. It relieves to a considerable degree the itching of lichen planus, dermatitis herpetiformis, para-psoriasis and ichthyosis. With psoriasis it has been very disappointing and its value in acne has not been proven.

Following the report of Michaels at the last meeting of the Southern Medical, I have used it with great success in pityriasis rosacea. Of course this is a harmless condition and in time gets well without treatment, but the ready elimination of the eruption is very pleasing to patients who object to the presence of this disease.

No doubt, many more uses will be found for this agent, and very probably a personal ignorance makes it what it is in the writer's work, but it is safe to say:

1. The ultra violet light is an agent in no way comparable to the X-ray in general applicability or power for good.

2. Until its technique is standardized, it will continue a remedy of unstable character, its real value being clouded by the extravagant claims of the manufacturer.

3. If a remedy, judged by what experience we have to guide us, is the indicated remedy, the rights of the patient demand that he should receive it.

4. We are all doctors first and specialists last. There is no more reason why a roentgenologist should avoid other indicated therapy than the dermatologist should avoid X-ray and, therefore,

5. The treatment of patients is the work of a doctor and not a technician.

17 East Grace Street.

THE BUSINESS SIDE OF THE PRACTICE OF MEDICINE.*

By ALEXANDER McLEOD, M. D., Glen Allen, Va.

Medical colleges with their hospitals give a complete course in medicine. The practical business part of making a living is left entirely with the young doctor. He must work out his own problems. He soon finds out that the greater part of the money due him for the little practice he has done is still due him. He realizes that as his practice increases, so do his expenses and unpaid accounts. As time goes on these become one of his *real* problems.

The majority of doctors have had no business training before they are turned loose on the public. Although they need the money badly for their first practice, they are very timid about charging enough for their services and sending out statements and asking people for the money due them. The public is wise to this weakness. Unfortunately many beginners continue this easy, careless way about their pay all their lives. They may make good doctors, work hard and have large practices. They may do a lot of good. They are better to everyone else than to themselves. They are a prey for every dead beat. They never accumulate anything to speak of. They are not respected as they should be. They are not able to give their families the comforts, nor their children the advantages they should have. If this type of doctor should die suddenly or become disabled, his wife and children would be left in financial distress. Have you ever heard the remark, "why don't you know Doctor So and So has over \$10,000.00 on his books." When I hear a remark like that I feel sorry for that doctor. He is not getting what he earns. He may be getting what he deserves.

The doctor who is slovenly in collecting his accounts receivable, is usually careless about the caliber of services he renders. He is tolerated, admonished and condoned by the public because he is easy. He is afraid of the public because very often his work is not what it should be. He slashes fees instead of digging at the bottom of his cases for a reputation. He seems to clamor for volume only. By his acts he says, "to h— with everybody" including his fellow practitioner.

After all, gentlemen, it is only a species of laziness or moral cowardice not to give good

service and charge and collect accordingly. Who is it that can do his best work for people able to pay and at the same time feel that he will be paid only a fraction of what his services are worth? It is an ever narrowing vicious circle.

I started out to practice in a very unbusinesslike way. The more practice I did, the harder it was to get cash to pay my bills. My expenses were more. I gave away more medicines, bandages and sundry supplies. I was away from my people. I had a wife, child and a practice—started. That was all. It was either make that practice pay me enough to live on, or do something else. After all of the time and money I had spent in a medical education, I couldn't afford to quit. I didn't want to quit. I love to practice medicine. I don't like to undertake anything and not complete it. Finally, I evolved a plan that I am now successfully following whereby I collect 95 per cent of my bills. I will try and outline it to you gentlemen tonight.

First: I keep an accurate, itemized account on my day sheet of all work done, for whom, and their addresses. Items are recorded as I do the work. I charge for all medicines and supplies used. I am just as careful to record all moneys collected. At the end of the day I transfer these items to a small card index file. On the back of each card I record diagnosis and treatment given. By this method of recording I reduce failure to record charges to a minimum. I can render an accurate itemized statement at any time. I can refer back and tell what was the matter, and what I did for a patient when he consulted me before. I never have the embarrassment of sending a patient a bill for an account he has paid, nor am I unable to give the same medicine, when requested, that I gave for a similar condition before. These are little things, but they do count in many ways. I carry this card index with me on my rounds of calls. People often wait 'til they see me to pay me. Many ask me for their accounts away from the office. They pay then if I tell them the amount.

Second: When I dismiss a patient, I give the amount of the bill then. People are more grateful and seem to pay more cheerfully just as they are getting well than at any other time later. Many will pay all then. Some will pay part. The rest will tell you when they will

*Read before the Hanover County Medical Society, at Ashland, Va., October 12, 1925.

pay. The longer an account stands, the harder it is to collect.

Third: I send out monthly statements. By doing so I keep it fresh in their minds that they owe me. Many people will forget the doctor as soon as they are well. They never think of him until he is needed again. If they owe you very much they are more apt to call some other doctor than if you had collected. When you remind them each month more will pay you when they see you. Many patients desire a statement each month to know just how they stand with their doctors. By sending statements promptly, disputed charges can be adjusted while the items are fresh on your mind. You are then at an advantage, but if some time has elapsed and you have forgotten, you usually have to adjust it just like the patient wants it, and to your loss. Bear in mind always that patients that pay you praise you; patients that owe you furnish them that knock you. The ones most bitter are the ones you credited the most and the longest, and then tried to collect from them.

Fourth: I never personally ask for settlement of charged accounts under three months. I just send statements. Anytime afterwards, or if I hear a patient is moving away, I go to see him at once. I tell him I have come to present my account. I time my visits when he is most likely to have money—after payday, etc. I collect all, in part or a promise to pay at a future time and I keep going at stated times until paid in full. Also to close these accounts, where I can't get partial payment I take a note or buy anything of value they have to sell. Accounts of six months or longer and not closed or paying on I give to a constable or collection agency to worry over. I take their cards out of my active file. I try to use discretion and not hound and press good people in this intensive manner if they can't pay. I give them more time or cancel their bills. I use this only on the hard ones.

So much for the collecting after it is charged. Now what is better still is to get all or part cash as you do the work.

Much of my work consists of one, two and three calls. These accounts run from two to fifteen dollars—according to distance. Almost any family can pay an account of this size as well one time as another, and will pay at once if handled right. I say when finishing the case and they don't mention pay, "Now Mr.

So and So your bill is so much. Your credit is good with me. I'll charge it if you want me to, but hadn't you rather pay it now? You can then forget it, and I won't have to send you a bill for it. It is just about as easy for you to pay this *small* amount one time as another." That gets payment then—either in full or part—and a definite time as to when the other will be paid. I say to those deferring "You just save it for me and I will come by for it at that time." With those that put me off by telling me they have a note to meet, I ask for and generally get a note for my account. Their defense at giving a note is weak at that time. First they give notes, second they are embarrassed by not having money to pay you, and I don't fail to tell them that my account is just as good and just as important as any bill they have. I carry blank notes in my pocket at all times. You have all heard the saying, "Strike when the iron is hot."

Some cases are sick a long time. The ones that carry sick insurance should pay some each week. I know when they get their benefits. I tell them that sick insurance is for the doctor anyway, and that they must pay me half or so much of this insurance money each week. I tell others it is easier to pay a small bill than a large one and suggest they pay me five, ten or fifteen dollars each one or two weeks, and I'll credit them with it and their bill won't be so large when they get well. I use this method only on the known or suspected slow pay.

Confinement cases are collected for when I dismiss the case. I tell them what I will charge them when they engage me. I give them a cash price and tell them so. Where I think necessary I tell them it is easier to save up the doctors money before the baby comes and pay him then than to save it up afterwards. This is one sickness they know of ahead of time and they should prepare for it. If they haven't all of my fee when I dismiss them, I keep after them until paid. I make known bad pay, pay me half of my fee before I take the case, the balance is usually easy. My percentage of collections for confinement cases is over 95 per cent.

Venereal cases are cash as I go—I charge according to ability to pay. If you credit them they beat you more often than any other class of practice.

Now a few practical points and I'm through.

I never stop treating a case until I know he or she, more often she thinks she is all right. I give them a tonic and order them to report to my office or send for me when the medicine gives out.

When patients I know to be bad pay consult me at my office, I tell them my terms are cash. I charge a dollar a visit, medicines extra—for they have to pay cash for medicines anyway elsewhere.

Every doctor should have office hours and endeavor to keep them. It saves many miles of driving. It helps you to collect. It enables you to get your meals regularly. Now don't forget to give your office callers a thorough examination. Take their blood pressure. Examine their urine if indicated. In my experience more mistakes are made by doctors through carelessness and laziness, than from lack of knowledge.

Don't forget to record findings and treatment given.

Ever keep in mind that to press people properly for overdue accounts improves your clientele. It enlarges your income. Replace the ones you lose from the reputation you get for promptness in making your calls and thoroughness in taking care of your cases and by your businesslike methods. Don't deny the worthy needy—but learn to say no to the dead-beat. Have you ever been tied up on a case that didn't amount to a tinker's d— and have a real good family have an accident happen to one of them or some one get sick? They would call you and when they found you out, they called some one else. Who is the loser? The owl can tell you.

You don't want as patients people that won't pay you a reasonable fee, in a reasonable time, for good service, when they are able. You haven't time to treat them. Mark them off your list. You had better spend the time you would take up with them in getting better acquainted with your wife and children, or at some relaxing, healthful sport, or at some work of a hobby nature.

Now, in conclusion, I would not have you get the impression that I place finances ahead of my profession. If I did I never would have selected medicine as a profession, because I feel sure that the same amount of time, energy and sacrifice that the average doctor puts into his practice, if given to business, would be very much more remunerative. I do feel, however,

that the medical profession as a whole has been very lax in looking after their own financial interests. We are entitled to a comfortable living. We should accumulate something for our loved ones in the event of an early death or for our old age. Kind words for the doctor that is dead and gone are all very well, but they do not pay the widow's coal bill or for the children's school books. After all, we cannot put a commercial value on our work. How can one settle on a financial basis for the saving of human life? But every laborer is worthy of his hire.

CONVULSIONS FOLLOWING THYROID-ECTOMY—REPORT OF CASE.

By W. R. PAYNE, M. D., Newport News, Va.
Elizabeth Buxton Hospital.

A review of the more recent literature reveals that convulsions occur frequently after parathyroid injury or loss in human and animal subjects. The cause is not well established. The recent work by Collip and Hanson indicated calcium deficiency as the most significant element in the production of the convulsions.

I have been unable to find a description of epilepsy as a complication of thyroidectomy. Dr. Crile says that he has seen convulsions follow thyroid operations but in none of these cases had there been unconsciousness.

The following case includes certain peculiar details, including epileptiform attacks:

M. H., aged 19, Jewess, clerk, single, was seen first on the night of November 27, 1924, complaining of numbness, choking sensations and unconscious attacks. Her past family and personal history was negative.

Two years ago she noticed some enlargement of her neck and some nervousness; both of these conditions continued to grow worse until June 2, 1924, at which time she presented herself to a physician in another city for examination. His records show that she had a marked exophthalmos, poor convergence, flushing of skin, enlargement of thyroid with loud bruit on both sides, a fine tremor of the hands and tongue, pulse rate 120, blood pressure 125/80, basal metabolic rate 63 and a loss in weight from 148 to 103 pounds. The examination disclosed no other significant conditions. After a period of rest and preparation she was operated upon June 25th, both lobes being removed.

During the latter part of her convalescence

she had her first attack which was suggestive of epilepsy. These attacks became more frequent and more severe, occurring from a day to several weeks apart, coming on without warning. During the intervals she was dull and apathetic, refusing to eat at times and would not volunteer conversation even with members of her family. She had not menstruated since her operation, five months before.

On the occasion of my first visit she had just recovered from an attack, but on the following night I saw her in an attack in which she fell, striking her head on the floor. For about ten minutes she was unconscious, reflexes absent, muscles rigid, head thrown back, eyes closed, bloody froth exuding from mouth, and pulse rate of 68. She recovered in fifteen minutes, complaining of headache.

Examination following day: Patient lying in bed, mentally dull, volunteered no conversation, answered questions hesitatingly, and appeared totally uninterested in her condition. She was well developed and fairly well nourished. Skin was very dry and there was an acneform rash on shoulders. Hair was dry and alopecia marked, there being several areas one inch in diameter in which there was practically no hair. Forehead presented a contusion from falling. Eyes showed a slight exophthalmos. Tongue was bleeding. There was a transverse scar of operative incision on neck. The heart rate was 68; blood pressure 110/70; reflexes active; urine negative; Wassermann negative.

Treatment: Absolute rest in bed, a light diet, luminal gr. ss—t. i. d., thyroid extract gr. ss—t. i. d., and lutein 1 c.c. hypodermically daily for six days, and then every second day until twelve were taken, then lutein tablets grs. v—t. i. d., for fourteen days.

December 17, 1924: At the end of a month thyroid extract was increased to grs. iv daily and luminal gradually reduced to gr. i daily. Allowed out of bed; began menstruating six days before. Skin and hair show some improvement. Mental attitude markedly improved. Pulse rate 72.

January 20, 1925: Patient states that she menstruated again at end of twenty-eight days; flow was normal, lasting four days. Her only complaint is feeling "dazed" at times, and numb especially in limbs. Luminal was reduced to gr. ss daily. Thyroid was continued

and parathyroid gr. 4/10 daily was given in addition.

February 23rd: Patient feels fine in every way except numbness in legs. Calcium lactate grs. vi every four hours was given.

March 19th: General condition good. No numbness. Weight has increased eight pounds since illness began. Thyroid extract discontinued.

April 23rd: Hair and skin appear normal. Weight increased four pounds since March 19th. Pulse rate 72. Continue parathyroid gr. 4/10 daily, and calcium lactate grs. x every four hours.

May 23rd: General condition excellent. She now enjoys playing piano, singing, auto riding, dancing, etc., also works in store one day a week. Calcium lactate grs. x was continued t. i. d. No other medication.

June 22nd: Patient states that she feels perfectly well. Has no complaints. Her weight has increased from 97 to 113½ pounds. Her skin and hair have regained their normal appearance.

August 27th: Patient states that she never felt better in her life; is working as a clerk, does not tire easily; cheeks are rosy. Pulse rate 72. Blood pressure 116/80. Weight 115 pounds.

COMMENT

This case has been under observation and treatment for ten months, during which time her improvement has been steady. She has had no convulsions since being given luminal on my first visit; it being discontinued six months ago. She has menstruated regularly every twenty-eight days for the past nine months. For the past seven months she has had no sensation of numbness or choking.

Her appetite is normal and weight increased eighteen pounds. Her mental state has changed markedly; she is cheerful, converses freely, enjoys music, dancing and shows. She has almost a complete lapse of memory from the time of her operation until January of this year.

This case, to my mind, has been mystifying and interesting. I have purposely avoided making a diagnosis.

My present opinion is that I was dealing with an irregular type of tetany, associated with hypothyroidism.

HEALTH STATUS OF PRE-SCHOOL CHILDREN OF VIRGINIA.

By EMILY GARDNER, M. D., Richmond, Va.
Assistant Director Bureau of Child Welfare, Virginia State Board of Health.

For the past three and a half years the State Board of Health in its attempt to lower the preschool morbidity and mortality rate has been conducting Child Welfare Conferences in many counties of the State. These conferences have been held at the request of local doctors, county public health nurses, social workers, sanitary inspectors, mission workers and interested citizens. The late spring, summer and early fall have been as a rule the seasons in which the conferences have been held, because of weather conditions, road facilities and the lack of interference with the school work of the public health nurses.

The purpose of the conferences is education; the desire is to teach the parents that disease prevented is better than disease cured, that many of the diseases of childhood may be avoided by correction of defects, proper nutrition, establishment of hygiene habits, in conjunction with certain prophylactic measures, as vaccines and serums. To accomplish this, a complete medical examination is made, defects are indicated and parents are advised to have corrections made as the family physician recommends. Emphasis is placed on the necessity for health habits, suitable food, sufficient fresh air and sleep.

As an added service a dentist worked with the conferences during the summers of 1923 and 1924 and one month of 1925. A large number of dental corrections were made for the preschool children and for an occasional mother. Because of the lack of funds the dental work could not be continued during the entire summer of 1925.

Since 1922, Child Welfare Conferences were held in fifty-one of the one hundred counties of the State. The findings at these conferences show the immense percentage of very young children handicapped by one or more defects.

Statistically stated:

	1923	1924	1925
Number of children examined	1,877	2,499	2,009
Number with defective eyes--		7+	3+
Number with defective ears--		3+	1+
Number with defective teeth--	26+	39+	39+
Number with defective tonsils -----	31+	38+	45+
Number with evidence of nasal obstruction -----	18+	18+	8+

Number with cervical glands enlarged -----	29+	66+	43+
Number with defective hearts	4+	7+	9+
Number with defective lungs--	5+	3+	5+
Number with orthopedic defects -----	6+	5+	9+
Number with abdominal defects -----		8+	13+
Number with skin eruption--	12+	10+	12+
Total number children with defects -----	81+	85+	86+
Total number children without defects -----	18+	14+	13+

In considering these statistics, several factors must be considered:

First, there was a uniformity in the examinations. The medical examinations were standardized by a uniform record sheet. In 1924 and 1925 one clinician made all but approximately 850 examinations, consequently, the determination of what constituted a defect was consistent.

Second, the ages of the children examined varied from a few months to six years. Since defective teeth and defective tonsils are impossible or comparatively rare in babies under nine months of age, the figures representing these defects are consequently diluted.

Third, what constituted a defect according to the clinician's opinion should be considered:

a. Eyes—any organic lesion, such as strabismus, inflammation, ulceration, etc.

b. Ears—any abnormality, discharge or evident deafness.

c. Teeth—caries or pronounced malocclusion.

d. Tonsils—enlargement, inflammation, apparent infection, undue adhesion or pronounced cryptic condition with enlarged anterior cervical glands and history of frequent colds, earaches, sore throats or malnutrition.

e. Nasal obstruction—mouth breathing, snoring, etc.

f. Cervical glands—palpable.

g. Hearts—arrhythmias, organic or functional murmurs.

h. Lungs—rales, or signs of suspicious tuberculosis.

i. Orthopedic—flat feet, spinal curvatures, cleft palates, chest abnormalities, paralysis, etc.

j. Abdominal—hernias, ascites, enlarged spleens or livers.

k. Skin—eruption.

As a matter of interesting comparison the following percentages were taken from school examinations made by the same clinician, using

the same basis for examination with the added test for vision and hearing:

	First School	Second School
Number examined -----	239	182
Number with defective eyes-----	1+%	2+%
Number with defective teeth-----	70+%	61+%
Number with defective tonsils-----	77+%	77+%
Number with evidence of nasal obstruction -----	9+%	4+%
Number with cervical glands enlarged -----	80+%	70+%
Number with defective hearts-----	10+%	12+%
Number with defective lungs-----	3+%	5+%
Number with skin eruption -----	8+%	8+%

The larger percentage of teeth and tonsil defects among the school children in comparison is partly explained by the number of infants in the preschool group.

As yet there are few who have taken the toxin-antitoxin to prevent diphtheria or have been vaccinated against smallpox. Emphasis is being laid on the protection given by these and the need for the preschool child to be protected.

Especially is it important that the preschool group be immunized against diphtheria because of the greater susceptibility at these ages.

Unfortunately, it is impossible to estimate the results of these conferences in figures of lives saved, or disease prevented. Most of the clients are not seen again and as yet the nurses have given no separate report of the corrections made of the particular groups examined at these conferences.

Conclusions:

1. Over three-fourths of preschool children have some physical defect.
2. The largest per cent of defects are those of teeth and tonsils.
3. The majority of the defects found are subject to correction, and if uncorrected may lead to definite impairment of health.
4. The number of preschool children protected from diphtheria is exceedingly small.
5. The parents need educating along lines of hygiene and the importance of small defects as producers of physical unfitness.

CORNEAL ULCER—TREATMENT.*

By ROBERT SCOTT LAMB, M. D., Washington, D. C.

It is not in the hope of bringing something new to your attention today that I have chosen for the subject of this paper—Corneal Ulcer

and Its Treatment—but rather in the hope of emphasizing the efficacy of certain means—medical and surgical—which are, and some of which have been for a long time available for use in the treatment of this condition.

It may be well enough before proceeding further to look for a moment at the fact that embryologically the anterior layers of the cornea are of ectodermic origin, and that Decemet's membrane is of mesodermic origin. In mentioning this, it is purposeful that you should see the analogy between the epidermis of the cornea and the epidermis of the skin surface and realize that an infection or a contagion which may affect one may as easily affect the other; and, again, that Decemet's membrane may be as easily affected—although the fibers are of rather resistant structures—as are the analogous structures from the mesoderm, by focal infection elsewhere in the body.

Many cases of suppurative keratitis—more often spoken of as corneal ulcer—do not respond immediately to treatment, but rather tend toward a slow process of degeneration, or of progress and regress, in such uncertain fashion as to cause anxiety to both patient and oculist; therefore, it is that I ask your attention to the consideration of a few facts in regard to corneal ulcers and their treatment. First and foremost, let me say that most corneal ulcers, if not all, are due to infection following injury to the epithelial surface; corneal abscess, if not metastatic, being due to an infection following penetrating injury. Abrasions and slight injuries to the corneal epithelium are, of course, quite numerous; and, simultaneously, one may almost always identify in a smear when stained or by culture, evidence of the presence of microorganisms of an infectious nature within the cul-de-sac or fornix of the eye; and in many instances following pressure over the lacrymal sac, one may obtain microorganisms which, when cultivated, show pure culture. Yet the individuals who carry these malefactors rarely suffer from ulceration of the cornea, the answer being, of course, that the resistance of the tissues, by individual cells and en masse, is of such character as to preclude the likelihood of infection. The same individuals, however, under other conditions in which the resistance of the general system has been lowered because of shock or of fatigue may easily

*Read before the Medical Society of Virginia, Maryland and the District of Columbia, November 18, 1925.

succumb to a slight injury or abrasion and thereby have marked corneal ulcers.

The etiology of corneal ulcer has been and is well covered by various text-books; that of the resistance of the person having corneal ulcer is summed up by a line or paragraph. Not to take up too much of your time I leave that fruitful field of the etiology of corneal ulcer and proceed.

It may be bold, indeed, yet I will try to outline a conduct for the care of a case of corneal ulcer—having in mind that the treatment must be modified more or less to the needs of the individual case; and, furthermore, what might seem axiomatic, that a radical method of procedure in the beginning may prevent the necessity of more drastic measures later for the treatment of the case, or even the possible loss of the eye. May I here call attention to a fact which I tried to bring forward some years ago, that is, of the hoe-like action of the very sharp conjunctival margin of the lids which does not discriminate but treats a dead cell as if it were a foreign body, and by scraping the surface of the ulcer prevents repair and delays healing.

I would suggest the following outline: First, that a careful examination be made of the front of the eye and the eye-lids with the aid of a Zeiss-Loupe, or a corneal microscope, if need be, which will possibly bring to light a foreign body or inverted eyelash; something which is presently continuing the irritation and which can be immediately removed. Second, a close inspection of the corneal surface without the aid of, and with the aid of a stain, preferably fluorescein, in order that the extent of the ulceration may be ascertained; then the use of homatropin, hyoscine or atropin to put the eye at rest, if the ulceration be not deep; when deep the desiccation or cauterization of the ulcer, preferably with the electro-cautery, the irrigation of the cul-de-sac with an antiseptic solution, such as cyanide of mercury or, possibly, even the irrigation of the lacrymal sac, and an antiseptic ointment for application to the eye-ball after irrigation; all this may be sufficient to stem the progress of the ulceration; the eye being placed further at rest by the use of a single eye-tie or bandage. A subconjunctival injection of the cyanide of mercury—1:5,000—might also be used.

Let me digress a moment to say that many of us have our own preferences for the antiseptics which we care to use; mine is for methylene blue in powder form, or in 10 per cent solution, depending upon the severity of the ulcer.

Let us consider what would be a rational procedure in the conduct of severe ulceration perhaps of a serpiginous type; first, a dose of castor oil internally; then cleansing of ulcer and cul-de-sac, following this by an external canthotomy. When the bleeding has stopped, the use of methylene blue in powder form to the ulcer is to be followed by one to five thousand bichloride ointment and a single eye-tie, with, perhaps, the use of fibrolysin hypodermatically in the arm; hexamethylenamine and aspirin internally, together, perhaps, also the use of one of the iodides.

I hear the question in your minds—but what of the resistance? I am coming to that now. The factors most needed for an improved resistance are an increased oxidation and phagocytosis which can be brought about by increasing the hemoglobin content of the blood and blood alkalinity together with an increased number of white blood corpuscles. To accomplish an increase in hemoglobin one might give internally tincture of chloride of iron and glycerine, or syrup iodide of iron, or Fowler's solution; or, in extreme conditions, sodium cacodylate injections could be given. To procure alkalinity of the blood, one might use lactate of calcium or sodium bicarbonate internally; and instead of hot compresses of boric acid as usually ordered, substitute saturated solution of magnesia sulphate. I have found most efficacious another method of rapidly producing alkalinity is the use by Murphy drip of a solution containing sodium carbonate and sodium chloride. Nothing is more efficacious in the production of leucocytes than is mustard; and we obtain this in the solution known as fibrolysin. Next to mustard in its ability to aid in the production of leucocytes is, perhaps, friction—either with mercury ointment or Crede's collargolum (nitrate of silver ointment). Another extremely valuable medicinal substance for the acceleration of the metabolic processes and the improvement of the nutrition, thereby upbuilding resistance, is thyroid extract.

My story is necessarily brief; the details of

the treatment must be carried on to meet the ever-changing symptoms. My plea is for more frequent observation of corneal ulcerations for the purpose of catching the lights and shadows in the ever-changing picture and taking advantage of the germs while they are attenuated; and, after getting them on the run, keep them on the run until they are gone; also for the use of substances well calculated to aid in the upbuilding of the resistance of the tissues, thereby shortening the duration of the disease.

If I have been able to bring to your attention the idea of the worth-whileness of a concentrated effort to improve the resistance of the tissues, and have impressed you sufficiently with its value to induce you to change the conduct of your cases of corneal ulcers and adopt some of the suggestions herein contained, I feel that you can be assured of the grateful appreciation of many patients whose end-result of the healing processes will be greater visual clearness.

111 *Stoneleigh Court.*

BRIEF NOTES ON PERITONSILLAR ABSCESS.

By J. B. H. WARING, M. D., Blanchester, Ohio.

Peritonsillar abscess, or as it is more popularly known, quinsy, is a rather common throat ailment. In a large way, it is of immediate concern to the general practitioner, who sees most of these cases in their earlier stages, in his capacity as family physician.

In a general way, it may be defined as a violent septic inflammation, which chiefly centers in the peritonsillar structures, and as a rule ends in abscess formation. Fortunately, the process is usually unilateral; or, if both sides of the throat are to become involved, the side first involved is commonly well on the way to resolution before the second peritonsillar area becomes noticeably involved. This is fortunate from the patient's standpoint, for, even with unilateral involvement, there is great swelling, the tonsil, soft palate and uvula becoming swollen, congested, and often edematous. In severe cases the swelling becomes so great that both swallowing and respiration are interfered with, and impediment of mobility of the lower mandible gives the patient still more distress. Where both sides of the throat are involved at the same time, the patient is in still greater distress.

The process usually terminates in abscess formation, the pus collecting in the supratonsillar tissue and gradually burrowing forward, with tension thereby upon the anterior pillar and the velum. Rupture may take place spontaneously at this point, through the supratonsillar fossa, or the posterior pillar.

The physician is usually not called in until the process is well developed, at which time the clinical diagnosis is easily made. The secretions are profuse and stringy, and may be composed of mucus, or mucopurulent matter. The patient is sick and looks the part, usually with a stupid, anxious cast of countenance, the mouth being open and a steady dribble of saliva therefrom, adding to the general discomfort.

The major treatment of quinsy is surgical; and in this brief paper, general details of medical treatment will be omitted. Tonsils the seat of peritonsillar abscess should be enucleated as soon as the condition has cleared up, and the patient has regained his usual strength and vigor in some measure. With some individuals the affliction is an annual or semi-annual visitation; and in general, recurrences are fairly common. In a few cases, when seen in the early stages, the process may be aborted by good, vigorous hyperaemic treatment applied over the tonsils with a large size tonsil suction tube; this is fairly painful, however, and not all patients will submit to this. While "radical surgery" is opposed by a great many surgeons and specialists, prompt tonsil enucleation under a brief general anesthetic will break up a peritonsillar abscess formation and restore our patient to the normal more rapidly, and with less pain and suffering, than any other treatment.

The classic procedure is to wait until abscess formation has become apparent, the point of greatest fluctuation located, and then to incise freely with a bistoury. Where free pus is thus found and evacuated, the patient usually experiences considerable relief almost immediately; but if we wait until the process is thus fully developed, we merely subject our patient to a good deal of unnecessary suffering and misery. Often we fail to reach pus, or, perhaps, cut merely into a pocket of pus, and leave still deeper pockets untouched.

From the physician's standpoint, it is often a matter of chagrin to make the classic incision, fail to reach pus; and then wait around

under the reproachful glances of the patient, and the doubting eyes of the family, until a spontaneous pus evacuation brings relief.

Where there is no definite point of greatest fluctuation, the classic incision is generally made about on a level with the base of the uvula, and about midway between the uvula base and the upper wisdom tooth of the affected side. Some operators advise that the incision be from above downward, while others recommend a horizontal incision from without inward toward the uvula. Where free pus is not reached, a stiff blunt probe may be carried through the incision with pressure and will often enter the abscess cavity, which may then be enlarged with a pair of slender artery forceps. In many cases, the classic incision and treatment will give prompt relief, and is a procedure well within the grasp of the average physician. In no case, however, is it wise to await spontaneous rupture of the abscess, as it may burrow beneath the deep fasciae of the neck and lead to serious complications, even death. In short, then, quinsy is a serious condition, with serious possibilities; and should be so regarded by all.

When the general practitioner has incised as above and failed to secure pus evacuation, he generally feels that he has gone as far surgically as he is competent to go, and either resorts to hospitalization, or calls in a throat specialist to handle the case. This is all right, of course, but in the vast majority of cases the general practitioner is fully competent to see the case through to recovery.

An alternative to incision through the anterior pillar is by dissection of the anterior pillar from the tonsil, going back until pus is reached. This is a procedure which, while effective, often calls for more operative skill in tonsil surgery than many general practitioners feel possessed of.

A procedure that is still more effective, and far easier of performance than either incision through the anterior pillar, or dissection of the anterior pillar from the tonsil, is to make our incision through the supratonsillar fossa on the affected side. A five or ten per cent cocaine solution may be swabbed over the proposed site of incision, and then one or two c.c. of a two per cent novocain solution injected slowly into the supratonsillar tissues. After a few minutes' wait, it will be found the tissues are well anesthetized, and may be freely in-

cised without pain or further discomfort to the patient. The issues in the supratonsillar fossa are loosely connected, and may be easily incised or blunt dissected with a scalpel or probe, going back and downward behind the tonsil until the abscess cavity is entered. In appropriate cases, this may be facilitated by drawing the superior pole of the tonsil inward and downward with tonsil grasping forceps, while the supratonsillar structures are divided. In practically every case of peritonsillar abscess, where pus has formed, it will be quickly and easily found by this incision; and even where the process has not reached the stage of frank suppuration, this easily made incision will establish free drainage, lessen congestion in the tissues, and tend to a prompt amelioration of the process, a consummation devoutly received by both the patient and the attending physician.

109 East Main Street.

GYNECOLOGICAL SURGERY—RADICAL OR CONSERVATIVE?*

By GILBERT F. DOUGLAS, M. D., Birmingham, Ala.

In opening a discussion based on the above title, we at once question what can be said in the brief time allotted for this paper. I will only mention a few of the more common conditions with which we have to deal.

In the first place, what shall be our general attitude in the treatment of vulvo-vaginal or Bartholin gland inflammation in the acute and chronic or abscess stages? We are prone to open these abscesses and drain them, although in many instances they apparently heal without further trouble. There are, however, those which do not heal but become quiescent to abscess within a short time. My opinion is that it is conservative to do what appears radical in these conditions, that is, dissect them out thoroughly. This is done preferably under a general anesthetic, or at least such anesthesia as will enable perfect hemostasis to be had. Usually it is safer from the surgeon's standpoint to have them in hospital for a day or so to safeguard against secondary hemorrhages; otherwise, we are called to our office at midnight or to the patient's home after she has had a terrific hemorrhage.

When we are called to examine a patient with lacerations of the pelvic floor or perineum,

*Read by invitation before the Calhoun County Medical Society, at Anniston, Ala., July 28, 1925.

who is having many concomitant symptoms, as backache, headache, etc., we have often a real question to solve as to whether this condition is one of sufficient significance to warrant an operation for perineorrhaphy or not.

In considering this question, we have to consider the statics of the pelvic viscera, and we are to realize that the herniation through the vaginal canal rests upon relaxation of anterior and posterior pelvic segments; consequently, that cystocele, rectocele, and prolapsus uteri are not pathological entities, but component parts of a general process expressing merely the extent of the lesion. This lesion, the surgeon must further recognize, depends upon a constitutionally inferior construction of the abdomino-pelvic floor, the factor of labor, the tumors, the distended abdomen or whatever it is representing the exciting cause. To allow this condition to exist without being properly repaired and intra-abdominal and extra-abdominal pressure being equally balanced, will often defeat our efforts in correcting the symptoms we have, such as backache, retroverted uterus, etc.

The real question is, shall we do a perineorrhaphy, or depend on palliative treatment, tampons, pessaries, etc.? Where symptoms are present, I feel a plastic operation should be done.

In doing plastic work on the vagina we should not overlook cystocele. When bagging considerably, I feel an anterior colpotomy should be done at the time we do a perineorrhaphy. This, if properly done, will enable the patient to empty her bladder more thoroughly, preventing a retention of urine with its secondary cystitis or bladder symptoms.

In gynecology, we have at times a condition to treat which may tax our judgment as to what is best to do, that is, in giving treatment to that multitude of patients who are suffering with leucorrhea, the great majority of such cases being due to cervicitis, and not metritis as is commonly accepted by them.

I feel that the question as to what is best to do with this condition will have to be determined by the symptoms and physical signs presented in each individual case. The patient's financial condition will often determine the amount of time she can lose from her work for operation or treatment.

I have the firm conviction that we can have

the same constitutional symptoms resulting from infections of the cervical glands that we have from infected tonsils, not so quickly produced or probably so flagrant in character, but sufficient to cause pronounced constitutional symptoms. I have seen articular rheumatism develop with no other foci of infection found than in the cervix. So, in the majority of these cases, I feel that better and quicker results are obtained by doing a trachelorrhaphy. Incidentally, the Sturmdorf type is, I believe, one of the best improvised as this removes the infected glands or foci of infection which are causing the trouble without jeopardizing the musculature of the cervix.

When not possible to do the radical operation, we get results in many cases by the Dickinson method of treating or draining the cervix, by use of the electric cautery. This is especially applicable to those who cannot spare the time for an operation, but can come to the office for treatment over a considerable period of time.

In thinking of cervical infections we have to consider the chain of lymphatics leading into the broad ligaments, tubes, ovaries, uterus, etc., which convey this infection from its original focus, and, until this chain is broken or the infection drained out, we get a systemic pollution.

In cases of carcinoma of the cervix and fundus there is a great deal of discussion as to whether to (1) operate; (2) use radium; (3) use radium first and then operate; (4) operate first, then follow with radium. The stage of the disease will, I think, largely determine the things to be done first. My personal conviction is that where we have an operable condition we should use the scheme set out by Crossen and others, that is, give radium first in large doses—4,000 to 5,000 mgm. hours, at one sitting,—then, within ten days to two weeks do a hysterectomy, removing as much of the tissue as practicable. After the patient has gotten over the operation, give further radium treatments as is thought best by the surgeon and radiologist. In a condition as serious as carcinoma, I do not feel justified in taking undue palliative steps.

On many occasions where we are having uterine hemorrhages from the milder to the more severe type, we are put to the test as to what to do—whether we shall do hysterectomy, curettage, use X-ray or radium, or whether we

shall give palliative treatment and study our patient further, for there are many things—both local and constitutional—that may cause these hemorrhages. I feel, therefore, where we have some obscure condition with which to deal, we are not justified in making a snap shot diagnosis without proper study, for this might cause us to be radical, which would be brutal, or to be conservative, which would be unpardonable.

Where there is possibly present such a great and dreaded disease as cancer, which oftentimes throws out a danger signal, such as a mild or severe hemorrhage, we should as far as possible make a real diagnosis before allowing or advising our patient to go "forward," for, if needs be, radicalism today may mean life to our patient tomorrow.

When we go into the treatment of the uterine appendages, tubes, ovaries, etc., we have a very broad field for argument as to whether we shall treat conservatively or radically. This, I think, has to be determined in many instances by economic and social circumstances. To take the case of a salpingitis or pus tube condition where the patient is not wholly dependent on her own earning for a living and can stay in bed and take treatment and fair care of herself over a period of several months, such cases can often be entirely cleared up to where they have no further symptoms, and they may sometimes even bear children—a matter which affords great mental relief to many patients who are comforted by the knowledge that this privilege has not been taken away from them. On the other hand, it is economy to many to be operated, the removal of pus or inflamed tubes curing their symptoms and enabling them to return to work within a relatively short time.

There are some cases that do not seem to clear up under palliative treatment even after their tubes and ovaries have subsided to their normal size; they continue to have pain and remain below par.

This suffering and anxiety continues so great that finally it seems best to remove their tubes which are harboring foci of infection. In operating on these cases, a majority of which have had gonorrheal infections, I think that the method of Culbertson is the safe one—that is, remove the portion of the fundus which has the tubes entering, as this will insure the removal of all of the infection contained in the

tubes. Hemorrhage is not great, and it does not take much longer to do this operation than ordinary salpingectomy. At the time of this radical operation I think we should always do a trachelorrhaphy, if the cervix is infected. By removing the infected tubes and fundus and the cervical glands which are infected, we give the patient a chance to regain her strength.

What shall we do with the ovaries while operating for pus or infected tubes? My personal feeling is that we have no right to remove ovaries at this sitting unless they show a definite diseased condition, for this will cause a premature menopause, carrying with it the nervous and often mental symptoms which very materially affect the whole physical being of the individual. For a surgeon to remove uterus, ovaries, tubes, etc., with the hope of relieving some obscure or vague symptoms without a definite diseased condition of these organs, if not criminal, is at least brutal and causes gynecological surgery to be frowned upon and to fall into disrepute.

Before doing gynecological operations, let us study, first, the patient as a whole; then, secondly, from a gynecological viewpoint. In other words, make a complete physical examination, including blood, urine, etc., and if anything is suggestive, do cystoscopic, X-ray, or such other examinations, as are necessary to clear our diagnosis before advising operation. (By way of parenthesis let me say, if tubes and ovaries were located as are the vas deferens and testicles, there would not be half so many removed.)

I feel that many tubes, ovaries and possibly uteri are being removed when, if we would only take time to make a diagnosis, we would find a cystitis or some other pathology of the urinary tract which could be cleared up by cystoscopic treatment, bladder irrigation, etc., and our patient would become well and happy. By operating before making a correct diagnosis, the patient is probably not only not benefited, but has been done an unpardonable injustice by the surgeon operating, the operation likely having been adopted because it was seemingly more spectacular.

In discussing radicalism or conservatism in gynecological surgery, I am reminded that there should always be a deciding point as to how much we should, and how much we should not do. For example, we should always keep in mind the condition of our patients, and not

do a lot of plastic and pelvic work, then go into the upper abdomen and remove a gall-bladder or do an operation on the stomach, etc., because the patient needs to have this done. Where the patient's condition does not permit, it is much better to do two, three, or four operations and give the patient a chance to get well, than to do one "successful" operation but the patient dies.

Where radical surgery is indicated after careful examination and proper diagnoses have been made, I feel that is the thing to do, but the plea in this paper is for a correct diagnosis before doing radical operative procedures. Where this is not being done, those of us who are doing gynecological and abdominal surgery are embarrassed by the censure of certain people that our motive for operating is the fee collected rather than the result obtained. They base their conclusions on patients operated on without having been relieved of symptoms.

In defense of the unnecessarily sacrificed tubes, ovaries, uteri, etc., if it does no harm. I should like to paraphrase a poem of Ella Wheeler Wilcox, putting the uncalled for ultra radical gynecological surgeon in the place of the wine, and the deliberate, alert, conservative surgeon in the place of the water:

"There sat two glasses, filled to the brim,
On a rich man's table, rim to rim;
One was ruddy, and red as blood,
And one was clear as the crystal flood.

"Said the ultra radical surgeon to his conservative brother,

Let us tell tales of the past to each other.
I can tell of banquet, and revel, and mirth,
Where I was king, for I ruled in might,
And the proudest and grandest souls on earth
Fell under my touch, as though struck with blight,
From the heads of kings I have torn the crown,
From the heights of fame I have hurled men down;
I have blasted many an honored name,
I have taken virtue, and given shame;
I have tempted the youth with a sip, a taste,
Which has made his future a barren waste.
For greater than any king am I,
Or than any army beneath the sky:
I have made the arm of the driver fail,
And sent the train from its iron rail;
I have made good ships go down at sea,
And the shrieks of the lost were sweet to me;
For they said, 'Behold, how great you be!
Fame, strength, wealth, genius, before you fall,
And your might and power are over all.'
Ho! ho! Conservative brother, laughed the radical one,

'Can you boast of deeds as great as mine?'

"Said the conservative brother: 'I cannot boast
Of a king dethroned, or a murdered host;
But I can tell of hearts that were sad,

By my crystal drops made light and glad;
Of thirst I have quenched and brows I've laved,
Of hands I have cooled, and souls I've saved.
I have leaped through the valley, dashed down the mountain,
Slept in the sunshine, and dripped through the fountain;
I have burst my cloud fetters and dropped from the sky,
And everywhere gladdened the landscape and eye.
I have eased the hot forehead of fever and pain,
I have made the parched meadow grow fertile with grain;
I can tell of the powerful wheel of the mill
That ground out the flour and turned at my will;
I can tell of womanhood, debased by you,
That I have uplifted and crowned anew.
I cheer, I help, I strengthen and aid,
I gladden the heart of man and maid;
I set the chains of an ultra Radical surgeon free,
And all are better for knowing me.'

"These are the tales they told to each other,
The Radical surgeon to his Conservative brother,
As they sat together, filled to the brim
On a rich man's table, rim to rim."

I should not like to be classed as an ultra-conservative, for I fear I am too much of a radical. When undue conservatism is practiced, it becomes radical, and when improper or ultra-radical procedures are done, they become disastrous to our patient's welfare. So, before making our choice as to which gynecological operative step we shall take, let us *think*.

804-6 *Empire Building*.

Miscellaneous

THE ACHIEVEMENTS OF THE AMERICAN MEDICAL ASSOCIATION.*

By WENDELL C. PHILLIPS, M. D., New York City.
President-Elect, American Medical Association.

Mr. President, members of the Medical Society of Virginia, and guests—or, if I were to speak as I prefer to speak, fellow-members of the greatest profession on God's foot-stool:

It is my pleasure this afternoon to acknowledge the gracious invitation of your president and some others of your members that I come here representing the great parent association to address not only the House of Delegates, but this large and representative body of your state society membership.

I do not know that you are all aware of the fact of the age of the American Medical Association, but it is a fact that it was organized in the year 1846, in the city of New York, and the strange part of the organization, the original organization, was that its purpose was to

*Informal illustrated talk at the fifty-sixth annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

improve medical education. The professors of the medical schools, mostly of the eastern medical schools, came together and felt that there should be something done to improve medical education, and they organized the American Medical Association in 1846.

There are about 160,000 physicians in the United States, and of that 160,000, in round numbers 100,000 are members of the American Medical Association. We wish there were many more, but those of us who know the inside are convinced that a certain percentage of the rest would hardly be able to come up to our standards of membership.

While there are about 100,000 members, only about 60,000 of those are fellows of the association. Now, there has been a great deal of questioning on the part of the members as to what is the difference between a member and a fellow. I can answer it best by saying that a fellow is a member of the American Medical Association who has attended the meetings, been assigned to a section, and has subscribed for the journal. Fellows must be members of the scientific assembly and be assigned to one of the sections.

You know in most of the states the unit of membership in the A. M. A. is the county society. I was quite surprised to find that in your state it is not so. Now in New York State, the minute a man is made a member of the county society, that act makes him a member of the state society and of the A. M. A. In many states of the Union this holds good; all you have to know is whether a man is a member of the county society; if he is, then he is a member of the state society and of the A. M. A. The dues are paid on the county society basis; there is nothing additional for the state society or the A. M. A. The county sends the dues in to the state society.

The officers of the American Medical Association, as you know, are president-elect, president, two vice-presidents, secretary, and nine trustees. The trustees are elected by the house of delegates, as are also the president, the vice-presidents, and the secretary. This board of trustees, of which I had the honor to be a member for several years, are the directors, under the state laws of Illinois, of a great organization. The house of delegates has put more and more responsibility on their board of trustees, until it has become necessary for the board of trustees to have an executive committee that meets in Chicago every month, ex-

cept one or two summer months. For about five years I served on that committee, and went to Chicago every month for a conference. The trustees have gradually come to be the body that outlines the general working of the organization, or, in other words, of the whole medical profession of the country.

The funds of the association are getting to be very great, and the house of delegates, of their own accord, have made a by-law that they may not appropriate any funds for any purpose whatever except with the approval of their own board of trustees. So you see how they have tied up those funds so that they shall not be wasted. You know how easy it is for some fellow with a glib tongue to get up and ask for an appropriation for some purpose and get it, but that can not be done in the A. M. A. The board of trustees is responsible for the expenditure of the funds of the organization.

I should like to speak of Dr. Simmons, who became secretary and general manager in 1899. At that time the *Journal of the A. M. A.* had a circulation of less than 10,000, about what the circulation of the *New York State Medical Association Journal* is today. Under his leadership our great journal grew until it now has a circulation of nearly 90,000 weekly. If you will look on the upper right hand corner of the title page, it will tell you every week how many copies were printed. I have not seen less than 86,000 for the last few years, and it has run up as high as 95,000.

One of the great successes of the *Journal of the A. M. A.* is its advertising. You can not know how careful the trustees have been about that advertising. The various councils, the council on pharmacy, the council on medical education, etc., the bureau of public health, the bureau of legislation, all have a part in producing the results of which you read in their various reports and in the journal. All these activities are centered at 535 North Dearborn Street, Chicago. The council on pharmacy and chemistry has probably done more to purify medical advertising than any other agency in the world. We have our own chemical laboratory at headquarters, and every single remedy which is put on the market and which it is desired to advertise in the *Journal of the A. M. A.* is tested there. The makers have to send a specimen to headquarters, together with their claims, and our own council on pharmacy takes it into the laboratory and tests it from A to Z. And when the council

reports, the board of trustees never interferes. You will see the reports published in the journal. If the report is against the article, it is thrown out; if it is for the article, then we accept the advertising. The income from advertising in the journal today is well over \$600,000 a year.

(Dr Phillips showed a number of lantern slides of the home building and its various departments.)

THE MEDICAL OFFICERS' RESERVE CORPS.*

By H. L. FREELAND, Major in Medical Corps.
U. S. A., Richmond Va.

Mr. Chairman and fellow-members of the Medical Society of Virginia: I esteem it a pleasure and a privilege to talk to you for a few moments about something which is very near to all of us—national defense. I want to speak particularly of national defense as it affects physicians, more especially physicians in Virginia. After having gone through the Spanish-American war and the late war, the United States finally adopted what is known as a military policy. Never before had there been a recognized military policy that everyone might know and might attempt to follow and arrive at a common goal. But we have this military policy now. In accordance with this policy, the United States, for administrative purposes, is divided into nine corps areas—or sections, if you please. The third corps area is made up of Virginia, Pennsylvania, Maryland, and the District of Columbia. It was found, before they did this, that if we were to have any protection as a nation, the policy must go out to every hamlet and section and farm of the United States. We realized that in the last war. This policy covers the United States like a cloak, like a mantle.

Then they established a small regular army, in which I have been serving for some eighteen years, so I feel that I know something about it. This regular army is supposed to be the first line of defense in case of trouble with any other nation. The national guard constitutes the second line of defense, and the reserves the third line of defense. I have been interested for the last few years in building up the reserves. It is not my old army, nor yours, but ours. I want you to feel that way about it.

In this third corps area we have several divisions, one of which is the Eightieth Division. The Eightieth Division is made up

largely of officers from Virginia, line officers and medical officers. In this division is the 305th Medical Regiment.

We have been trying to correlate things so that we can take a wounded man from the ranks and take care of him. I want to say right here that if the medical profession can do this thing well, it will be left alone; if not, there will be interference.

The headquarters of this 305th Regiment is in Richmond, at 315 Postoffice Building. We have not all the various regiments of the Eightieth Division filled up, and one of the lowest, in point of numbers, is the 305th Medical Regiment. That is why it gives me pleasure to talk to you about your army and my army and ask what we are going to do about it. It is more or less my responsibility, but I have no appropriation to make it possible to go and see you. Now, the idea of having the headquarters of the local regiment here is that you might be ready to take part in the national defense, if necessary. A reserve officer is not called upon for duty or training, except in an actual emergency. You are asked if you can come for training; if you can, all well and good.

After you have filled out an application blank and been accepted, there are certain correspondence courses which you can take. It is an endeavor to conduct you along military lines so that if you are called upon in a major emergency you will know something about military procedures.

Now, we have so few officers that I am forced sometimes to assign an X-ray man where I do not want him, or a surgeon where I do not want him. We have little conferences once a month, usually in my office, where we talk over our problems. Let me ask you, without growing too much like a good Methodist preacher (I am a Methodist myself and proud of it; they have a way of reaching out and getting hold of you, and I should like to do it for the time I am here), come down to my office while you are in the city, or those of you who live here, come down at any time, and talk over the duty you owe your family and your city and your country in this matter. We shall consider it a pleasure to talk with you. I hope you will take this matter seriously, and think it over now and after you go home. If you do your part, enough of you, we shall just be smiling morning, noon, and night, and then we can do good work.

*Informal talk at the fifty-sixth annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

They have made concessions to the medical profession that they have not made to any others. Because of the work done by the American Medical Association and other organizations in establishing standards, the authorities have said they will accept any man who is a graduate from a Class A school and who has been licensed. All you have to do is to pass a physical examination. Remember, you will not be forced to break away from your practice and go to summer training camps. You will find that you will really want to attend them when you can. You will be called upon only in a major emergency. You will not be a really good American citizen if you do not want to do your part. It is our protection and the protection of our posterity.

Correspondence

The Lure of Florida.*

TO THE EDITOR:

In response to your request I am glad to give you some impressions gathered here.

I am spending the winter in the land of sunshine and flowers on account of the health of my son.

Most everyone talks about Florida these days. This state, the oldest in point of settlement, and yet the last to be developed, is now having some very serious "growing pains." Inadequate postal facilities and a very inconvenient embargo on shipments of various kinds are outstanding manifestations. Development here is wonderful but does not approach what it would be if necessary transportation could be had.

I might write something about opportunities for investment which are holding the attention of so many, but presumably your readers are interested only in what this state has to offer in healthfulness and climate.

Albert Shaw made the following statement in a recent number of *Review of Reviews*: "Above all others the medical men are responsible for the Florida movement. It was the fear of yellow fever, Asiatic cholera and other deadly diseases of epidemic character that had long checked the progress of a state that was exposed to infections from Cuba and elsewhere. The conquest of these maladies now makes our

Southern lands the most healthful, whereas they once had the bad reputation of frequent epidemics and high death rates."

The real and permanent thing about Florida is not so much its natural resources or its real estate boom, but rather its great future as the home of health and comfort, and because of this her economic position is assured.

Health and longevity, a place to keep warm and to keep well, that is Florida. Ponce de Leon had the right idea when he sought here the "fountain of youth," though the magic was in the air and not in the waters.

I would say that the real lure of Florida is in its climate and the privilege of living and playing out of doors all the year.

Almost every one realizes in a general way that sickness increases in winter. Systematic observation shows with startling clearness the lost time, the lowered efficiency and the suffering which accompany the winter months. Most people tend to live indoors in winter and outdoors in summer.

It is not merely the cold weather itself but the indoor life that makes winter a time of sickness and death.

According to Babson, giving statistics from all over the United States, "Winter raises the death rate from thirteen per thousand to seventeen per thousand, or an increase of about thirty per cent."

The annual exodus to Florida for the winter season seems wise for the life out doors, the fresh air indoors, the sunshine and the changed environment, are definitely beneficial.

The opportunity of utilizing the healing qualities of the sun's rays (in which I am personally interested) cannot be excelled anywhere. Heliotherapy stands first as a therapeutic agent in some diseases, and is an important adjunct in many others. The actinic rays of the sun are abundant and powerful over the southern part of Florida. Several costly and well equipped sanatoria are planned and being built.

Those who come to this state in search of health and length of days will find a rich reward. I feel sure that Florida has a great future. For millions of people it should become a literal "fountain of youth."

E. W. PEERY, M. D.

Delray, Florida.

January 19, 1926.

*Upon our request, Dr. Peery, of Lynchburg, Va., who is spending the winter in Florida, sent us the following letter, which we take the liberty of publishing.

Analyses, Selections, Etc.

Outbreak of Poliomyelitis Traced to Milk.

The *Health News* of the New York State Department of Health contains the following announcement, which should be of interest to doctors:

"During the third week of December six cases of poliomyelitis developed in the city of Cortland, New York, which has a population of approximately 15,000. All of the cases found by Dr. A. C. Knapp, health officer, had consumed milk obtained from the same dealer. This dealer furnished milk regularly to the families in which four of the cases occurred, the fifth drank it three times daily at a restaurant. The sixth case was discovered to have consumed some of the milk at a gathering which he attended six days before the onset of his illness.

"Prior to this there had been three cases reported in Cortland during 1925, the onsets of the cases being given as October 7th in all three. Despite their almost synchronous onsets these three cases each took milk from a different source and it was not possible to discover anything else in common.

"On December 7th, seven days before the onset of the first case of this apparently milk-borne series, a boy, sixteen years old, who was working on the dairy farm where the milk concerned was produced, became sick with fever, headache, pain in the back and some diarrhea. He vomited on December 11th. He continued at work, milking from eight to ten of the twenty cows on this dairy, though he noticed his hands were growing progressively weaker and that he had some pain and tenderness in his left arm. On December 11th he was definitely paralyzed in his entire left extremity and right deltoid muscle, but succeeded in milking three cows with his right hand before his condition was noticed. He was immediately taken to his home in the city of Cortland, where he was isolated and subsequently cared for. In addition to the symptoms mentioned he is said to have had slight retraction of the head but no resistance to anterior flexion of the spine. His fever was reported as high (over 104° F) when seen by the physician on December 11th. This boy in addition to milking cows, carried the milk to the cooler, and also assisted in filling the cans from the cooler,

thus having an opportunity to infect practically all of the milk produced on the farm.

"The onsets of the subsequent cases were December 14th (one), December 16th (two), December 18th (two), December 19th (one). Two of these subsequent cases died from bulbar involvement, one on the second and the other on the fourth day after onset. There were no other cases in the city until December 25th when three more cases developed—one in a child, age seven, who consumed the suspected milk at home; one in a boy, age nineteen, whose mother worked in a restaurant which bought thirty-five quarts of this milk daily; the third child has no history of contact with any of the other cases, did not consume the suspected milk and is regarded as an extremely doubtful non-paralyzed case.

"An investigation at the dairy failed to discover any evidence of paralysis or illness among the animals except that five of the twenty cows reacted to the tuberculin test on December 14th. About 215 quarts of unpasteurized milk were sold from this dairy to a dealer in Cortland whose total daily output was 240 quarts. The total daily supply for the city is approximately 5,700 quarts.

"The cases which varied in age from fifteen months to twenty-two years were not located in the same section of the city and their social relations were extremely tenuous or non-existent."

Medical and Surgical Diathermy.

Herman Goodman, M. D., of New York City, writing under the above title, gives the new outlook in surgery with this modern modality, and the anticipated changes in the practice of therapeutic medicine and surgery. Diseases such as pneumonia, rheumatism (so-called) arthritides, and indeed, many affections which had previously been resistant to medication respond to diathermy. The Oudin spark is valuable in certain diseases. In dermatology, a field in which Goodman has had a special interest, a number of conditions lend themselves admirably to treatment by this relatively new electric agent. A list of the more common dermatoses is given: angioma, callositas, cicatrix, clavus, dermatitis papillaris capillitii, cornu cutaneum, fibroma, keloid, keratosis, lupus, lymphangioma, milium, molluscum, nevi, neurofibroma, verruca, and xanthema. If the accessible malignancies are included in dermatology one finds diathermy ideal for

basal cell epithelioma, melanoma, and those unfortunate instances of metastasis in otherwise inoperable prickle cell growth.

In the field of the genito-urinary specialist, a wide usefulness may be promised. Such lesions of the external genitalia as, verruca, persistent lichen papules, granuloma inguinale, epitheliomas and chancroid are mentioned. Circumcision could be done, meatotomy would be bloodless. Bi-polar use of diathermy is indicated in disease of the prostate, softening stricture, destroying papillomas inside the bladder through a cystoscope, as well as malignancies for which other methods fall short. Goodman would not depend on diathermy for treatment of acute anterior gonorrhoea. The sequelae and complications of gonorrhoea, as epididymitis, the follicular infections, the verumontanitis, and the prostatitis, not to mention the arthritides, respond to the high frequency modalities properly applied.

A knowledge of the physics is absolutely essential. A proper concept of the pathology of the particular lesion to be treated is also necessary. (*Med. Jour. and Record*, Vol. CXXII, page 672, Dec. 2, 1925.)

Proceedings of Societies

Virginia State Board of Medical Examiners.

At the examinations held by the Board in Richmond, December 8-11, 1925, fourteen applicants received licenses to practice in Virginia through examination, and nine by reciprocity.

Those licensed by examination are:

Dr. Smallwood Ackiss, Washington, D. C.

Dr. Howard Webb Angell, University of Virginia.

Dr. Edward Nelson Booker, Colony, Va.

Dr. A. Bernard Clark, Richmond, Va.

Dr. William B. King, Washington, D. C.

Dr. Richard H. Holt, Richmond, Va.

Dr. Ruth S. Mason, Petersburg, Va.

Dr. George A. Moore, Roanoke, Va.

Dr. Rufus A. Morison, Abingdon, Va.

Dr. Barney Plotnick, Richmond, Va.

Dr. Marvin G. Rock, Trammel, Va.

Dr. W. Lewis Schafer, Alexandria, Va.

Dr. Jayfus Irving Ward, Charlotte, N. C.

Dr. Graven F. Winslow, University of Virginia.

Those licensed by reciprocity are:

Dr. Garfield C. Burrows, Atlantic City, N. J.

Dr. Lemuel C. Cox, Stonega, Va.

Dr. Daniel W. Davis, Jr., Washington, D. C.

Dr. Herman F. Dormire, Virginia Beach, Va.

Dr. Claude G. Drace, Lynchburg, Va.

Dr. Will M. Garton, Quantico, Va.

Dr. Russell K. Hollingsworth, Norfolk, Va.

Dr. Ezekiel Howell, Roan Mountain, Tenn.

Dr. Dunlap P. Penhallow, Washington, D. C.

The Prince Edward-Cumberland County Medical Society

Met in Farmville, January 19th. In the absence of the president, Dr. Carter Weisiger, the vice-president, Dr. T. G. Hardy, of Farmville, presided. Dr. Susas W. Field, also of Farmville, was at the secretary's desk. Two interesting papers were presented by Drs. Carrington Williams and J. L. Tabb, of McGuire Clinic, Richmond.

Following the reading and discussion of these papers, a business session was held, at which the State secretary, Miss Edwards, spoke on the need of better county organization in the section which is to be reached by the new hospital which is shortly to be erected in Farmville. It was brought out that, while a district society, which was contemplated, would furnish a larger field from which to draw for good scientific meetings, the counties included should organize independently and maintain their individuality and thus have a right to representation in the House of Delegates of the State Society. With an idea of interesting doctors in the nine counties affected—Prince Edward, Amelia, Appomattox, Buckingham, Charlotte, Cumberland, Lunenburg, Nottoway and Powhatan—in the plan of organizing and maintaining county units as well as in having a district society, several of those present agreed to visit doctors in the various counties. A meeting will be held shortly at which time it is hoped counties not now organized will apply to the State Society for charters.

The Botetourt County Medical Society

Held its annual meeting December 2, 1925, at the home of Dr. E. W. Dodd, at Buchanan, Va. Dr. R. T. Givens, Glen Wilton, the president, presided. The following members were present: Drs. E. W. Dodd and R. H. Latane, Buchanan; J. K. Simmons, Mill Creek; M. T. McCulloch, Troutville; R. T. Givens, Glen Wil-

ton; and W. N. Breckinridge, secretary, Fin- castle. Dr. McCulloch gave a report of the proceedings of the Executive Council of the State Society meeting. Dr. W. N. Breckin- ridge was elected president for the ensuing year, and Dr. R. H. Latane, secretary.

At this time, the ladies who accompanied the doctors formed a Woman's Auxiliary, and elected Mrs. Dodd president and Mrs. Givens secretary.

Following the business session, Dr. and Mrs. Dodd entertained the doctors and ladies at a beautifully appointed luncheon.

The Truth About Medicine

In addition to the articles enumerated in our let- ter of November 27th, the following have been ac- cepted:

Arlington Chemical Company

Acacia (Soap.) Pollen Extract—Arlco; Alfalfa Pol- len Extract—Arlco; Ash Pollen Extract—Arlco; Box Elder Pollen Extract—Arlco; Burning Bush Pollen Extract—Arlco; California Walnut (Black) Pollen Extract—Arlco; Cocklebur Pollen Extract—Arlco; Cosmos Pollen Extract—Arlco; Fleabane (Common) Pollen Extract—Arlco; Goose Foot Pollen Extract—Arlco; Hemp Pollen Extract—Arlco; Indian Rice Pollen Extract—Arlco; Indian Wormwood Pollen Extract—Arlco; Live Oak Pollen Extract—Arlco; Marsh Elder Pollen Extract—Arlco; Meadow Fescue Pollen Extract—Arlco; Mugwort Pollen Extract—Arlco; Oat Grass Pollen Extract—Arlco; Olive Pollen Extract—Arlco; Pine Pollen Extract—Arlco; Platain Pollen Extract—Arlco; Prairie Sage Pollen Extract—Arlco; Poplar Pollen Extract—Arlco; Privet Pollen Extract—Arlco; Red Fescue Pollen Extract—Arlco; Rye Grass Pollen Ex- tract—Arlco; Slender Ragweed Pollen Extract—Arlco; Sweet Clover Pollen Extract—Arlco; Sweet Vernal Grass Pollen Extract—Arlco; Sycamore Pollen Extract—Arlco; Thistle Pollen Extract—Arlco; Velvet Grass Pollen Extract—Arlco; Western Cottonwood Pollen Extract—Arlco; Western Ragweed (Giant) Pollen Ex- tract—Arlco; Winter Fat Pollen Extract—Arlco; Yellow Daisy Pollen Extract—Arlco.

Cutter Laboratory

Special Pertussis Vaccine-Cutter

Annual Salt Bush Pollen Extract—Cutter; Ari- zona Ash Pollen Extract—Cutter; Bermuda Grass Pollen Extract—Cutter; Black Walnut Pollen Extract—Cutter; Canary Grass Pollen Extract—Cutter; Carless Weed Pollen Extract —Cutter; Coast Sagebrush Pollen Extract— Cutter; Cocklebur Pollen Extract—Cutter; Common Ragweed Pollen Extract—Cutter; Cottonwood Pollen Extract—Cutter; False Ragweed Pollen Extract—Cutter; Giant Rag- weed Pollen Extract—Cutter; Johnson Grass Pollen Extract—Cutter; June Grass Pollen Ex- tract—Cutter; Lamb's Quarters Pollen Extract —Cutter; Live Oak Pollen Extract—Cutter; Marsh Elder Pollen Extract—Cutter; Mugwort Pollen Extract—Cutter; Olive Pollen Extract —Cutter; Rabbit Bush Pollen Extract—Cutter; Orchard Grass Pollen Extract—Cutter; Plan-

tain Pollen Extract—Cutter; Red Root Pig- weed Pollen Extract—Cutter; Red Top Pollen Extract—Cutter; Russian Thistle Pollen Ex- tract—Cutter; Rye Grass Pollen Extract—Cut- ter; Sagebrush Pollen Extract—Cutter; Shad- scale Pollen Extract—Cutter; Sheep Sorrel Pollen Extract—Cutter; Timothy Pollen Ex- tract—Cutter; Velvet Grass Pollen Extract— Cutter; Western Ragweed Pollen Extract— Cutter; White Oak Pollen Extract—Cutter; Wild Oat Pollen Extract—Cutter; Yellow Dock Pollen Extract—Cutter.

Eli Lilly & Co.

Coco-Quinine.

Mallinckrodt Chemical Works

Sulpharsphenamine — Mallinckrodt 0.1 Gm. Ampules.
Sulpharsphenamine — Mallinckrodt 0.2 Gm. Ampules.
Sulpharsphenamine — Mallinckrodt 0.3 Gm. Ampules.
Sulpharsphenamine — Mallinckrodt 0.4 Gm. Ampules.
Sulpharsphenamine — Mallinckrodt 0.5 Gm. Ampules.
Sulpharsphenamine — Mallinckrodt 0.6 Gm. Ampules.

H. K. Mulford Co.

Insulin—Mulford 10 Units 10 c.c.
Insulin—Mulford 20 Units 10 c.c.
Insulin—Mulford 40 Units 10 c.c.
Insulin—Mulford 80 Units 10 c.c.

Parke, Davis & Co.

Aster Pollen Protein Extract Diagnostic—P. D. & Co.; Barnyard Grass Pollen Protein Extract Diag- nostic—P. D. & Co.; Bermuda Grass Pollen Pro- tein Extract Diagnostic—P. D. & Co.; Burweed Marsh Elder Pollen Protein Extract Diagnostic —P. D. & Co.; Chestnut Pollen Protein Extract Diagnostic—P. D. & Co.; Cocklebur Pollen Pro- tein Extract Diagnostic—P. D. & Co.; Common Ragweed Pollen Protein Extract Diagnostic—P. D. & Co.; Corn Pollen Protein Extract Diagnos- tic—P. D. & Co.; Cosmos Pollen Protein Extract Diagnostic—P. D. & Co.; Crab Grass Pollen Pro- tein Extract Diagnostic—P. D. & Co.; Dahlia Pol- len Protein Extract Diagnostic—P. D. & Co.; Dandelion Pollen Protein Extract Diagnostic—P. D. & Co.; Halberd-Leaved Orache Pollen Pro- tein Extract Diagnostic—P. D. & Co.; Giant Rag- weed Pollen Protein Extract Diagnostic—P. D. & Co.; Indian Hair Tonic Pollen Protein Ex- tract Diagnostic—P. D. & Co.; Johnson Grass Pollen Protein Extract Diagnostic—P. D. & Co.; June Grass Pollen Protein Extract Diagnostic—P. D. & Co.; Maple Pollen Protein Extract Diag- nostic—P. D. & Co.; Marigold Pollen Protein Extract Diagnostic—P. D. & Co.; Orchard Grass Pollen Protein Extract Diagnostic—P. D. & Co.; Plantain Pollen Protein Extract Diagnostic—P. D. & Co.; Prairie Sage Pollen Protein Ex- tract Diagnostic—P. D. & Co.; Rose Pollen Pro- tein Extract Diagnostic—P. D. & Co.; Rough Marsh Elder Pollen Protein Extract Diagnostic P. D. & Co.; Sage Brush Pollen Protein Extract Diagnostic—P. D. & Co.; Western Ragweed Pol- len Protein Extract Diagnostic—P. D. & Co.; Western Waterhemp Pollen Protein Extract Diagnostic—P. D. & Co.; Wheat Pollen Protein Extract Diagnostic—P. D. & Co.; White Clover Pollen Protein Extract Diagnostic—P. D. & Co.; White Goose Foot Pollen Protein Extract Diag- nostic—P. D. & Co.; Willow Pollen Protein Ex-

tract Diagnostic—P. D. & Co.; Wormwood Sage Pollen Protein Extract Diagnostic—P. D. & Co.; Yarrow Pollen Protein Extract Diagnostic—P. D. & Co.; Yellow Dock Pollen Protein Extract Diagnostic—P. D. & Co.

Protein Extract Diagnostic—P. D. & Co. Group 28; Protein Extracts Diagnostic—P. D. & Co., Group 29; Protein Extracts Diagnostic—P. D. & Co. Group 30; Protein Extracts Diagnostic—P. D. & Co. Group 31.

Physicians Diagnostic Laboratories

Concentrated Culture Bacillus Acidophilus—P. D. L. Swan-Myers Company

Mixed Ragweed Concentrated Pollen Extract—Swan-Myers.

E. R. Squibb & Sons

Scarlet Fever Streptococcus Antitoxin Concentrated.

Scarlet Fever Streptococcus Toxin for Dick Test—Squibb.

Scarlet Fever Streptococcus Toxin—Squibb.

NEW AND NON-OFFICIAL REMEDIES

Boro-Chloretone.—A dusting powder composed of chloretone (New and Non-official Remedies, 1925, p. 91) 1 part; boric acid, 1 part; purified talc, 2 parts. Parke, Davis & Co., Detroit.

Powdered Whole Lactic Acid Milk—Merrell-Soule.—

A modified milk preparation prepared from whole milk soured by the action of a culture of *bacillus bulgaricus*. Each 100 Gm. contains approximately butter fat, 28 Gm.; protein, 26 Gm.; lactose, 33 Gm.; free lactic acid, 4 Gm.; ash, 6 Gm.; moisture, 3 Gm. When suitably mixed with water, powdered whole lactic acid milk—Merrell-Soule is said to be useful in the feeding of infants when a soured milk is indicated. Merrell-Soule Co., Syracuse, N. Y. (Jour. A. M. A., Dec. 5, 1925, p. 1,811.)

Ovarian Substance Desiccated—P. D. & Co.—The entire fresh ovary (including the corpora lutea) of the hog and cow, dried in vacuo and powdered. For a discussion of the actions and uses, see Ovary, New and Non-official Remedies, 1925, p. 251. The product is also marketed in the form of five grain tablets. Parke, Davis & Co., Detroit.

Ovarian Residue Desiccated—P. D. & Co.—The residue from the fresh ovary of the hog or cow after the removal of the corpora lutea, dried and powdered. Ovarian residue is used for the same conditions as those in which the entire ovarian substance is used. The product is also marketed in the form of capsules and tablets containing five grains. Parke, Davis & Co., Detroit.

Insulin—Mulford, 10 Units, 10 c.c.—Each c.c. contains ten units of insulin—Mulford (Jour. A. M. A., June 20, 1925, p. 1,917). H. K. Mulford Co., Philadelphia.

Insulin—Mulford, 20 Units, 10 c.c.—Each c.c. contains twenty units of insulin—Mulford (Jour. A. M. A., June 20, 1925, p. 1,917). H. K. Mulford Co., Philadelphia.

Insulin—Mulford, 40 Units, 10 c.c.—Each c.c. contains forty units of insulin—Mulford (Jour. A. M. A., June 20, 1925, p. 1,917). H. K. Mulford Co., Philadelphia.

Insulin—Mulford, 80 Units, 10 c.c.—Each c.c. contains eighty units of insulin—Mulford (Jour. A. M. A., June 20, 1925, p. 1,917). H. K. Mulford Co., Philadelphia.

Ampules Dextrose 50 per cent, 20 c.c.—Each ampule contains 20 c.c. of a 50 per cent solution of dextrose U. S. P. Swan-Myers Co., Indianapolis. (Jour. A. M. A., Dec. 12, 1925, p. 1,891.)

PROPAGANDA FOR REFORM

Examination of Brands of Cinchophen.—Cinchophen was introduced in the U. S. under the proprietary name "Atophan" by Schering & Glats. At one time "Atophan" was included in New and Non-official Remedies. It was omitted 1921 because unwarranted therapeutic claims were made for it and for other reasons. As a result of the war, cinchophen was manufactured in the U. S. and at that time the A. M. A. Chemical Laboratory examined the market supply and found this satisfactory. Now the Laboratory reports the results of a re-examination. The Laboratory found that the cinchophen now marketed is still purer than that examined before and that all brands compiled essentially with the standards of the new U. S. Pharmacopeia. It is concluded that all the products reported on (cinchophen—Abbott, cinchophen—B. P. C., cinchophen—Calco, cinchophen—M. C. W., cinchophen—Morgenstern and Atophan) are equally good for therapeutic purposes, and one is no better than another. The report of the Laboratory brings out the exorbitant price that the public and the profession have to pay for proprietorship in medicine. Under its non-proprietary name, cinchophen can be purchased for from fifty cents to one dollar per ounce; but "Atophan" costs from \$2.50 to \$2.75 for the same amount. (Jour. A. M. A., Dec. 5, 1925, p. 1,828.)

More Misbranded Nostums.—The following products have been the subject of prosecution by the authorities charged with the enforcement of the Federal Food and Drugs Act: Gary's Vegetable Ointment (The Sloan and Spencer Medicine Co., Birmingham, Ala.), consisting mainly of kerosene, alcohol, turpentine, camphor and menthol. Sayman's Wonder Herbs (T. M. Sayman Products Co., St. Louis, Mo.), consisting essentially of a mixture of baking soda, powdered ginger, gentian root, rhubarb, licorice, cascara sagrada, buchu, senna, mandrake and busk-thorn.

Chappelear's Bronchini (Wm. M. Chappelear & Sons Co., Zanesville, O.), consisting of ammonium chlorid, extracts of plant drugs, flavoring material including anise and sassafras oil, sugar, alcohol and water. S-K Remedy (S-K Remedy Co., Oakland, Oregon), composed essentially of vegetable drugs, including aloes and a small quantity of a uydriatic alkaloid, alcohol and water. (Jour. A. M. A., Dec. 12, 1925, p. 1,907.)

Incitamin Not Acceptable For N. N. R.—In the information submitted to the Council on Pharmacy and Chemistry by Lehn & Fink, Inc., it is stated that Incitamin is a "standardized preparation of equine saliva, freed of coagulable substances;" that "each cubic centimeter contains 12 units of Ptyalin;" that it is preserved with 1 per cent of chinosol. It was stated to be indicated in the treatment of indolent ulcers. Entirely different statements as to the composition were made on the trade packages and advertising. Here it was stated: "Incitamin is a mixture containing saliva (equine), serum (also equine), and pancreatic extract. . . . It is preserved by the addition of one-half of one per cent of phenol." The Council found Incitamin unacceptable for New and Non-official Remedies because the statements of composition are contradictory; no data are given as to the amount of equine serum and pancreatic extract present; no data of any kind are given that the ingredients (whatever they are) have any action (except perhaps the phenol or chinosol); and so far as the evidence goes, it is an absurd and unscientific mixture. When the Council's statement was sent to Lehn & Fink, Inc., the firm replied that

Incitamin formerly contained "saliva, equine serum and pancreatic extract" but that the formula had been changed to a "standardized preparation of equine saliva." (Jour. A. M. A., Dec. 12, 1925, p. 1,907.)

Nephritin.—The present claims for Nephritin appear to be substantially the same as those advanced in 1907 when the Council on Pharmacy and Chemistry, in its report on "Reed and Carnrick's Methods" declared this preparation along with others inadmissible to New and Nonofficial Remedies. (Jour. A. M. A., Dec. 12, 1925, p. 1,909).

Goiter Prophylaxis.—Warnings against the promiscuous use of iodine in the prophylaxis of goiter are being sounded. Kimball urges that in all cases of iodine treatment, doses should be considered in terms of milligrams. The maximum dosage for an adult, provided there are no contraindications, is 10 mg. daily for not longer than one month during which time the patient should be under very close observation. Kimball believes that there is no danger in the routine prophylaxis of goiter as it is carried out through the schools, namely, the administration of 10 mg. of iodine weekly. The evaluation of the use of iodine in hyperthyroidism belongs in a separate category. During the last few years its use has gained a new vogue. However, as now used, iodine has not been shown to be sufficient to suppress the disease permanently. (Jour. A. M. A., Dec. 19, 1925, p. 1,970.)

Vitalait Not Acceptable For N. N. R.—"Vitalait" is the uninforming name under which the Vitalait Laboratory of Newton Center, Mass., markets a culture of *B. acidophilus*. In the advertising sent to physicians, the generally discarded autointoxication theories of Metchnikoff are used as a warrant for recommending its use in a host of conditions. The advertising sent to a layman is plainly addressed to the public. The Council on Pharmacy and Chemistry found Vitalait (Vitalait Laboratory, Newton Center, Mass.), unacceptable for New and Nonofficial Remedies because it is marketed under a non-informing name; because the claims made for it are unwarranted and misleading; and because it is exploited to the public in a way that may lead, not only to its use for imaginary ills, but also for conditions in which a correct diagnosis and rational medical treatment are all important. (Jour. A. M. A., Dec. 19, 1925, p. 1,985.)

Cod-Liver Oil Substitute.—If an infant has rickets and an idiosyncrasy against cod-liver oil, actinotherapy in the form of sun baths or ultra-violet ray exposure should be employed. Cod-liver oil extract and irradiated foods have not yet been developed to a sufficient extent to be commercially obtainable in reliable form. (Jour. A. M. A., Dec. 19, 1925, p. 1,986.)

Book Announcements

Abdominal Operations. Volumes I and II. By SIR BERKELEY MOYNIHAN, Leeds, London, England. Fourth Edition, entirely reset and enlarged. Two Octavo Volumes totaling 1,217 pages, with 470 illustrations, 10 in colors. Philadelphia and London. W. B. Saunders Company. 1926. Cloth. Price, \$20.00 net.

Headache. Its Causes and Treatment. By DR. THOMAS F. REILLY, Sometime Professor of Medicine, Fordham University, Attending Physician Bellevue and Allied Hospitals, Fordham Di-

vision, and at St. Vincent's Hospital. Philadelphia. P. Blakiston's Son and Company, 1012 Walnut Street. 1926. 8vo. of 246 pages. Cloth. Price, \$3.00 net.

Non-Surgical Treatment of Diseases of the Mouth, Throat, Nose, Ear, and Eye. By THOMAS H. ODENEAL, M. D., Otologist, Rhinologist, Laryngologist and Ophthalmologist to the Beverly Hospital Corporation, Beverly, Mass., Mass. State Infirmary; Associate Member, Staff of the Good Samaritan Hospital, West Palm Beach, Florida. Philadelphia. P. Blakiston's Son and Company, 1012 Walnut Street. 1926. 8vo. of 428 pages. Cloth. Price \$4.00 net.

Infant Mortality Declines in the U. S.

A definite decline in the infant mortality rate in all racial groups during the six-year period 1916-1921 is reported by Dr. J. V. DePorte, of Johns Hopkins University as a result of his analysis of birth and death statistics for different racial stocks in the United States. He found the differences in the rates of infant mortality of the several groups due primarily to differences in mortality from diseases of the digestive and respiratory systems, which are theoretically preventable. Less change, absolute or relative, was found in the rates of mortality of infants under one month.

Juvenile Delinquency, Philadelphia.

Broken homes and the absence of the mother from the home during the day are held responsible for a large number of the cases of child delinquency, dependency, and neglect brought to the notice of the Philadelphia municipal court, according to the report of the court for 1924. Forty-five per cent of the delinquent and eighty-four per cent of the dependent and neglected children brought before the court in 1924 came from broken homes, and in the homes of twenty-one per cent of the delinquents living with both parents or with the mother, the mother worked away from home during the day.

Insurance for School Children, Bavaria.

Insurance against injuries received in school buildings or on the grounds, on school excursions, or when going to and from school, is now provided for the teachers and pupils of all higher state schools, elementary and advance agricultural schools, and all technical schools of Bavaria. The ministerial decree providing for the insurance became effective at the beginning of the school year, 1925-1926.

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Editorial

Regeneration of Blood in Anemia.

Tincture of iron, Blaud's mass and other iron preparations, not to mention intravenous therapy of these products, in the light of recent experiments, are forced to go back in the assembly of remedial agents for blood regeneration. The fore-part of the stage is now given to liver substance and alimentation of certain foods. Hematinics must now stand aside and food products are in the limelight. But it may be, and probably is, merely a shifting of players in the play for the nonce in order to secure emphasis for conclusions on experimental animals. Iron merely fades a bit out of view. Liver feeding in prolonged induced anemia emphasizes its potency in sustained hemoglobin and red cell production. Whipple and Robbins† have brought this finding to the forefront and confirmed the observation by repeating former original experiments along this line. Muscle feeding in dogs with severe anemia gave favorable reaction in many cases, heart muscle being more effective than skeletal muscle. As to liver substance feeding, Whipple and Robbins got the impression that the body stores in the liver parent substances, which are used in construction of hemoglobin and red cells; the same is stored in striated muscle.

At the beginning of this inquiry and as a result of it, the iron treatment for anemia received a blow from those experimenters. They observed that during brief periods of anemia

iron seemed without effect. But in the light of long continued severe anemia due to hemorrhage, associated with iron depletion, they have recently asserted that dogs show favorable reaction to treatment by iron, and that the same is probably of humans.

But the important finding is that in addition to the value of hematinics, which clinical use has without serious question shown to be of value in secondary hemorrhage, the feeding of liver substance and the adequate alimentation of the patient with meat substance is important and more specific; while green vegetables have, from the same observers, only a moderately favorable value in regeneration of hemoglobin and red cells.

Pharmacopoeia.

The tenth revision of the United States Pharmacopoeia* should have more than a passing notice. "The Official U. S. P." was placed on sale August 15, 1925, five years after date of the convention called to revise the ninth. It is interesting to note that the first revision of the U. S. P. appeared in 1831, one year after the meeting of the first general convention. Historically, one should note that to Dr. Lyman Spalding, of the Medical Society of New York, in January, 1817, is due the credit for a plan for formulating a list of drugs or substances of recognized medical value.

This list, containing a method of preparing each substance, was known as the national or United States Pharmacopoeia. This list of Dr. Spalding's led to the calling of a general convention which was held in Washington, January, 1820. Here was authorized the first U. S. P., and it was issued in Boston, December 15, 1820.

Following are some of the changes adopted in the tenth revision which has just appeared:

1. The term "mil," meaning 1/1000 part of a liter, was discontinued; the term cubic centimeter, "c.c.," was substituted as the official designation of 1/1000 part of a liter.

2. Bio-assay of aconite, digitalis, and certain allied substances, as well as epinephrin, ergot, pituitary and cannabis, is now required, as these cannot be standardized by chemical

†Journal A. M. A., July 4, 1923, page 36.

*Public Health Reports, December 12, 1925.

methods. Vitamin A content of "Cod-Liver Oil" is also included, with an optional method allowed.

3. This U. S. P. contains 626 titles, 191 having been dropped, and forty added, making a net reduction of 151.

Eleven extracts and twenty-five fluid extracts were dropped, while fourteen tinctures and three lithium salts were deleted.

Diastase was discontinued as official; and heroin was dropped because it is a dangerous habit forming drug.

Only four mercurial ointments are retained, including stronger mercurial ointment and diluted mercurial ointment.

Tincture digitalis is now fat free, but the strength remains the same.

The following articles were added:

Official Latin name	Official English name	Trade name or synonym	Chief uses
Acidum Acetylsalicylicum.....	Acetylsalicylic Acid.....	Aspirin.....	Analgesic, antirheumatic.
Acidum Acetyltannicum.....	Acetyltannic Acid.....	Acetannin; Tannigen.....	Intestinal astringent.
Aethylis Aminobenzoas.....	Ethyl Aminobenzoate.....	Benzocaine; Anesthesin.....	Local anesthetic (insoluble).
Aethylis Chaulmoogras.....	Ethyl Chaulmoograte.....	Chaulmoogra Oil Esters; Chaulmestrol.	Treatment of leprosy.
Albumini Tannas.....	Albumin Tannate.....	Albutannin; Tannalbin.....	Intestinal astringent.
Amidopyrina.....	Amidopyrine.....	Pyramidon.....	Analgesic and antipyretic.
Argento-Proteinum fortius.....	Strong Silver-Protein.....	Protargin Strong.....	Antiseptic.
Argento-Proteinum Mite.....	Mild Silver-Protein.....	Protargin Mild.....	Antiseptic.
Arsphenamina.....	Arsphenamine.....	Salvarsan: 606.....	Antisymphilitic.
Barbitalum.....	Barbital.....	Veronal.....	Somnifacient.
Barbitalum Solubile.....	Soluble Barbital.....	Veronal-sodium; Medinal.	Somnifacient.
Barii Sulphas.....	Barium Sulphate.....		X-Ray of alimentary canal.
Calci Iodobehenas.....	Calcium Iodobehenate.....	Caliohen; Sajodin.....	Same as potassium iodide.
Carbonei Tetrachloridum.....	Carbon Tetrachloride.....	Tetrachlormethane.....	Anthelminthic.
Carbromalum.....	Carbromal.....	Adalin.....	Somnifacient.
Chloramina.....	Chloramine.....	Chloramine-T; Chlorazene.....	Surgical Disinfectant.
Dextrosium.....	Dextrose.....	Crystallized Glucose.....	For intravenous injection.
Dichloramina.....	Dichloramine.....	Dichloramine-T.....	Surgical disinfectant.
Epinephrina.....	Epinephrine.....	Adrenalin; Suprarenalin.....	Asthma. Local vaso-constrictor.
Fluidextractum Belladonnae Foliorum.	Fluid extract of Belladonna Leaves.		Same as Belladonna.
Fluidextractum Rhois Glabrae	Fluid extract of Rhus Glabra.	Fluid extract of Sumac Berries.	Astringent.
Ipomoea.....	Ipomea.....	Orizaba Jalap; Mexican Scammony.	Purgative.
Krameria.....	Krameria.....	Rhatany.....	Astringent.
Liquor Epinephrinae Hydrochloridi.	Solution of Epinephrine Hydrochloride.	Adrenalin Solution; Suprarenalin Solution.	Local vaso-constrictor.
Liquor Sodae Chlorinatae Chirurgicis.	Surgical Solution of Chlorinated Soda.	Dakin's Solution; Sodium Hypochlorite Solution.	Surgical disinfectant.
Neoarsphenamina.....	Neoarsphenamine.....	Neosalvarsan; Novarsenobenzol.	Antisymphilitic.
Oleum Chaulmoograe.....	Chaulmoogra Oil.....		Treatment of leprosy.
Paraffinum Chlorinatum.....	Chlorinated Paraffin.....	Chlorcosane.....	For making dichloramine solutions.
Phenobarbitalum.....	Phenobarbital.....	Luminal.....	Somnifacient.
Phenolsulphonphthaleinum.....	Phenolsulphonphthalein.....	Phenol Red.....	Test for kidney function.
Procaine Hydrochloridum.....	Procaine Hydrochloride.....	Novocaine.....	Local anesthetic.
Quinidinae Sulphas.....	Quinidine Sulphate.....		In auricular fibrillation.
Quininae Aethylcarbonas.....	Quinine Ethylcarbonate.....	Equinine.....	Tasteless quinine.
Resina Ipomoeae.....	Resin of Ipomea.....	Resin of Mexican Scammony.	Purgative—Replaces Scammony Resin.
Rhus Glabra.....	Rhus Glabra.....	Sumac Berries.....	Astringent.
Sodii Biphosphas.....	Sodium Biphosphate.....	Acid Phosphate of Sodium; Monobasic Sodium Phosphate.	To increase acidity of urine.
Spiritus Frumenti.....	Whiskey.....		Stomachic; Hypnotic.
Spiritus Vini Vitis.....	Brandy.....		Same as Whisky.
Thyroxinum.....	Thyroxin.....		Same as Thyroid.
Tinctura Krameriae.....	Tincture of Krameria.....	Tincture of Rhatany.....	Astringent.

High Blood-Pressure.

One may turn to this subject in retrospect for a faint hint of an advance in the treatment and in the pathogenesis of hypertension, because in the apparent finding that liver extract may reduce hypertension is locked the possible "liver" factor of its evolution and pathogenic beginning. Major's work, reported within the last six months,** may suggest that the early causes of hypertension may be bound up in inefficient liver function rather than in inefficient kidney function, or rather, to state it in another way, the liver failure to act upon protein metabolites in preparation for elimination through kidney may be one primary cause of hypertension, while the injury to kidney cells caused by the perverted uremic toxins may serve to bring about a kidney damage. This latter condition aggravates and perpetuates the high blood-pressure.

Major calls attention to a series of investigations that showed the marked pressor effect of the guanidin compounds and the possibility that these compounds, or allied substances, may play an important role in arterial hypertension. In connection with these studies it has been observed that experimental hypertension may be lowered by such substances as calcium chloride, potassium chloride, ammonium chloride and hydrochloric acid, as well as certain tissue extracts, as thyroid, testes, ovary, muscle, parathyroid and liver. Since 1895, depressor effects of tissue extract have been known because Oliver and Shafer found that aqueous and glycerin extracts of the thyroid gland, spleen, parotid and submaxillary gland possessed this depressor quality. So, the residue of thyroid soluble in alcohol, of Beebe and others, and "vaso-dilatin," a constituent of thymus, stomach, brain and pancreas, and Abel and Kutoba's studies of the depressor action of liver, as well as those of Roger, 1921-22, as also Leon and MacDonald, are all indications of a belief that some such quality is to be found in animal extracts.

Major prepared an alcoholic liver mass by process of alcoholic fractionation, the liver substance appearing as a precipitate when alcoholic concentration of approximately 90 per cent is reached. This is dissolved in distilled water and further purified by treatment with absolute alcohol, ether and chloroform. This concentration contains no cholin, histamin or

peptone. It has little toxicity, if any. Major treated forty-two patients. Extract was administered intravenously, intramuscularly and subcutaneously. Within one hour after the injection, the blood-pressure usually falls, varying from 20 to 50 or even 70 mm. of mercury. The fall is gradual, and is unaccompanied by unpleasant symptoms. The duration of the fall varies; in some cases it lasts two to three hours, while in others it is twenty-four hours to several days. Several patients, after receiving eight to ten doses, had a fall in blood pressure which persisted for a week or more. In observation on fifteen, intravenous injections of 5 c.c. caused the blood pressure to drop from 188/105 to 128/90. Additional observations are needed in order to evaluate the potency and practical usefulness of this treatment.

Bile Pigment.

No comment upon work in internal medicine of the past year would properly omit that done on the liver. The liver looms large because much that was observed and unknown now takes on a better aspect because of recent findings of liver physiology. The clearly conceived idea of the excretory function of the liver must be emphasized. Besides its metabolism function on starch and protein, its great eliminating function, as expressed in and illustrated by bile pigment, is of definite significance. If one-tenth of the body weight is blood, and if the red blood cells form a considerable portion of this, and if hemoglobin catabolism expresses itself in bilirubin, this end product of the red blood cell is an important excretion. This fluid organ, the blood, thus finds in the bile a dumping station for its effete material. Now, the new work centers about the fact that the origin of bilirubin has been attributed to hepatic function, whereas recent studies show that its origin is in the bone marrow, spleen, special cells in the liver (Kupffer cells), and in lymph nodes. The reticulo-endothelial system is, then, thought to be concerned in the production of bile pigment.*

Urea as a Diuretic.

The terms uremia and uremic poisoning tend to suggest the improbability of looking to urea as a hope of producing diuresis. The age-old belief that uremia expressed the retention of urea as a poison is no longer tenable; no

**Journal A. M. A., Volume 85, page 251.

*J. A. M. A., Vol. 86, No. 2, page 119 and literature references at bottom of page.

longer may one consider urea of pronounced toxicity. The normal body will withstand introduction of large amounts of urea without appreciable harm. Urea may be freely distributed throughout the tissues and body fluids without harm and becomes easily eliminated. Hewlett and his co-workers have shown that normal persons may ingest 100 gms. of urea, raising the urea nitrogen of the blood to a figure comparable with that obtained in blood chemistry of cases of chronic nephritis. Headaches, dizziness and slight somnolence occurred in normal persons whose blood urea exceeded 70 mg. per hundred cubic centimeters of blood. With normal elimination from normal kidneys, urea acts as a diuretic.

Crawford and McIntosh administered 30 to 60 gm. a day in decompensated heart cases with edema.

Urea diuresis increases water excretion: the urine volume reflects the concentration of urea in the blood. The explanation of the diuresis is that the excess of urea circulating in the blood is excreted by the kidneys and during the process carries considerable amount of water. In contrast with various renal vasodilator drugs and renal cell irritants, urea seems to function well in promoting a normal water balance in the body.*

Gelatine in Cow's Milk for the Human Stomach.

In discussing the digestibility of milks, especially by infants and young children, Alexander and Bullowa have pointed out that the protein content may not be considered as a unity because it is composed of two proteins, casein and lactoalbumin, with entirely dissimilar properties. Casein is an irreversible colloid exceedingly susceptible to coagulation by acid and rennin, while lactoalbumin is reversible and serves to protect the former.

Analysis shows that mother's milk contains a high proportion of lactoalbumin, the casein being adequately protected. Mother's milk is resistant to coagulation by acids and rennin and its greater acceptability as the food for the infant is reflected by the low mortality where the young are breast fed. On the contrary, cow's milk contains a high proportion of casein and relatively little lactoalbumin; it is poorly protected. In consequence, the casein of cow's milk is very susceptible to coagulation

by acids and rennin. The mere coagulation of the casein is not the whole story, because the coagulam carries down much of the fat present, yielding masses that have a tendency to cohere and are of a texture that is quite resistant to penetration by the digestive juices. The voiding of such masses occurs too frequently in artificial feeding; nutrients are lost to the organism and it is quite probable that decomposition products of an undesirable nature are formed within these undigested curds.

This is in no way a reflection on the great nutritive value of cow's milk which is indispensable but simply emphasizes the deterrent condition it meets in the human stomach which must be neutralized to insure the complete assimilation of the milk nutriment.

From this viewpoint an obvious modification in artificial feeding is the protection of the unstable casein by the addition of suitable protective colloids.

It is of interest to give careful attention to gelatine in this place. As previously mentioned, its colloidal protection is of the highest order. It is also an excellent emulsifying agent and may function as such in either an acid or an alkaline medium. It is a common product of exceptional purity, and is an easily digested protein which is readily combined with milk. In combination with milk, the protein content is increased, food value is increased, volume is not appreciably increased and digestibility is increased. Theoretically the employment of gelatine in the child dietary is sound, and laboratory experimentation and clinical experience substantiate these conclusions.

In combining gelatine with milk it is a good plan to soak, for ten minutes, one level tablespoonful of pure, unflavored, unsweetened gelatine in one-half cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; and add this dissolved gelatine to the quart of cold milk or the regular formula.

It must be remembered that there is a great difference in gelatine. The importance of absolute purity in any gelatine that is combined in milk or used in any way in the dietary is self-evident. No sweetening, artificial flavor, or coloring, should ever be added to this product.

The same reasons obtain in the use of gela-

*J. A. M. A., Dec. 26, 1925, page 2037.

tine with milk diet for adults. In dietaries for ulcer of the stomach, or typhoid fever, and in hyper-alimentation, the same advantages may be secured by the use of gelatine in milk.

News Notes

The Tri-State Medical Association of the Carolinas and Virginia

Is to hold its twenty-eighth annual meeting in Fayetteville, N. C., in a few days—February 16th and 17th. A fine program has been prepared for the professional meetings and the local committee of arrangements is doing everything possible to make the visitors have a profitable and pleasant time. Dr. W. Lowndes Peple, of Richmond, Va., is president, and Dr. James K. Hall, also of Richmond, is secretary-treasurer.

The meetings of this Society are always especially interesting, because of the welding of the strong ties which already exist between Virginia and North and South Carolina and owing to the fact that the papers are presented and discussed by some of the best medical talent in these three states. It is a good opportunity to renew friendships and hear good medical papers as well. Make your plans to attend this interesting meeting. Headquarters will be at the Prince Charles Hotel.

The Richmond Ophthalmological and Otolaryngological Society,

At its December meeting elected the following officers for the ensuing year: Dr. B. R. Wellford, president; Dr. A. F. Bagby, vice-president; Dr. F. H. Lee, secretary-treasurer.

The following invited guests read papers before the society during the year ending with this meeting: Dr. John H. Dunnington, New York City, subject, "The Surgical Treatment of Non-paralytic Strabismus"; Dr. John W. Burke, Washington, D. C., subject, "The Uses of Diphtheritic Antitoxin in Iritis"; Dr. Stuart L. Craig, New York City, subject, "Diseases of the Para-Nasal Sinuses."

The meetings are held on the third Tuesday of each month at the Richmond Public Library.

The Richmond Pediatric Society

Held its regular annual meeting at the Westmoreland Club, Thursday evening, January 14th, Dr. N. Thos. Ennett, presiding. At this meeting the following officers were elected for

the ensuing year: Dr. St. George T. Grinnan, president, Dr. J. B. Stone, vice-president, Dr. Henry Stern, secretary-treasurer.

This society was organized two years ago and includes in its membership every pediatrician in the city of Richmond. It meets monthly except during the summer months. It is said to have good programs and to have done much to advance the cause of scientific medicine and to promote good fellowship in the profession.

So successful has been this society that we understand there is a growing sentiment among the pediatricians of the State for a State pediatric society. Dr. Ennett believes that the importance of pediatrics has not been sufficiently emphasized in Virginia and that a State organization is needed.

Rest Cure and Convalescent Sanitarium.

The Rose Van Vort Restorium has been opened on Three Chopt Road, just outside the city limits of Richmond, for the care of convalescent and chronic patients and those in need of a rest cure. The sanitarium is ideally located in a most beautiful section and surrounded by attractive grounds. It can accommodate only a limited number of patients, but has been fitted up with the most approved apparatus for special treatments and care of patients.

Miss Rose Zimmern Van Vort has associated with her in this work Miss Frances Calisch. Both have been prominently identified with nursing and medical work here for a number of years.

Miss Van Vort, at one time superintendent of Memorial Hospital, was selected to have charge of the hospital and training school of Stuart Circle Hospital, this city, when that institution was open, and remained in this position for eleven years when she decided to take up hospital re-organization work. Her first undertaking in this line was the re-organization of St. Elizabeth's Hospital, this city, and the installation of a training school there. Following this, she did a similar work at the Knoxville, Tenn., General Hospital.

The Hospital Bureau to be operated in connection with the Sanitarium opens up an entirely new field of work in Richmond and one which should be of great service to the profession and the public.

Doctors on Board of Saltville Bank.

At the annual meeting of the Saltville, Va.,

Savings Bank, Dr. Thomas K. McKee was elected president, and Dr E. A. Holmes, vice-president, for the coming year.

Dr. C. B. Crute,

Farmville, Va., was among the visiting American Legionnaires who attended the exercises, on January 19th, incident to the laying of the corner stone of the memorial to be erected to the World War veterans in Richmond, Va.

"Carbon Tetrachloride"

Is the title of an illustrated, three section exhibit prepared by the U. S. Department of Agriculture. Since this well known chemical was proposed in 1921, for the treatment of hookworm disease in man and animals, more than 1,500,000 human hookworm cases have been treated.

One panel of the exhibit gives an illustrative case in man; another illustrates hookworms and gives information about the animals they affect; and a third shows that tetrachloride has saved the lives of thousands of dogs, especially hunting dogs in the South.

The exhibit is thirty inches high and, when packed for shipment, weighs approximately seventy-five pounds. A table two by four feet is suitable for showing it. The exhibit will be loaned for a period not to exceed thirty days to responsible persons who agree to pay transportation charges. Applications will be filled in the order received and should be addressed to the Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

Dr. T. M. Raines,

Wakefield, Va., who received slight injuries recently, when his car was struck by another car and practically demolished, is now much improved.

Married.

Dr. Howard Shield McCandlish, of New York City, a member of the class of '17, University of Virginia, and Miss Rae Worth Taylor, January 2nd.

Dr. and Mrs. Hunter H. McGuire,

Of Winchester, Va., visited Philadelphia last month.

Dr. M. H. Watson,

Of the class of '24, University of Virginia, and since then an interne at University Hospital, has located at Chatham, Va., for the practice of his profession.

The Annual Congress on Medical Education, Medical Licensure and Hospitals

Is meeting at Congress Hotel, Chicago, February 15, 16, 17 and 18. On the first and second days will be held the Council on Medical Education and Hospitals; on the third day, the Federation of State Medical Boards; and on the fourth, the American Conference on Hospital Service. All of our members are invited to attend.

American Board of Otolaryngology.

An examination will be held by the American Board of Otolaryngology in Dallas, Texas, on Monday, April 19, 1926, and in San Francisco, California, on Tuesday, April 27, 1926.

Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

Dr. Albert Sherrill,

Of the class of '01, of the former University College of Medicine, Richmond, after practicing for a number of years at Camp Crook, South Dakota, is now connected with Baker Hospital, Baker, Montana.

Dr. W. W. Insley,

Christiansburg, Va., was confined to his home by illness during January.

Pamphlet Instruction Reduces Venereal Disease Cases.

The practical value of giving young men information regarding the venereal diseases is attested by word received by the U. S. Public Health Service from one of the recruiting agencies of the U. S. Shipping Board. Some time ago the Public Health Service supplied the Recruiting Service of the Shipping Board with pamphlets suitable for distribution to young men. These were given out to the men of the crews on vessels operating to the Orient and the results have been designated as "far reaching." Physicians attached to passenger vessels report that the distribution of these pamphlets among the crews had the effect of very considerably reducing the number of venereal disease cases.

Dr. Hugh T. Nelson,

Charlottesville, Va., was elected vice-president of the Redland Club of that city, at its annual meeting held in January.

Dr. and Mrs. R. H. Wright,

Richmond, are spending several weeks in Florida.

Dr. A. T. Finch,

Of Chase City, Va., is much improved after a recent spell of illness.

Site Selected for Shrine Hospital.

The Shriners have purchased a lot of approximately nine acres, on Grove Avenue, west of the Belt Line, in Richmond, Va., on which to erect the proposed hospital for crippled children. This is to cost about \$500,000 and it is now expected that work will be started on it during next summer.

Dr. John J. Lloyd, Jr.,

Formerly of Virginia, but for the past several years medical superintendent of Monroe County Tuberculosis Sanitarium, Rochester, N. Y., has resigned this position that he may devote his time to private practice.

The Congress on Internal Medicine

Is to hold its annual meeting in Detroit and Ann Arbor, Mich., February 22-27, under the presidency of Dr. Charles G. Jennings, of Detroit. An invitation is extended all physicians in good standing in their State societies to attend. Dr. Frank Smithies, secretary-general, 920 North Michigan Avenue, Chicago, will gladly give any desired information.

Dr. William W. Keen,

Emeritus professor of the principles of surgery and clinical surgery, at Jefferson Medical College, Philadelphia, celebrated his eighty-ninth birthday on January 19th.

American Medical Association.

It may not be amiss to call attention of our readers to the fact that the American Medical Association meets earlier this year than usual, on account of the meeting being held in the far South. The dates are April 19-23, inclusive, and the place Dallas, Texas. Make your plans accordingly.

Inter-State Post-Graduate Foreign Clinic Assemblies.

The 1926 foreign clinic assemblies given under the direction of the Inter-State Post-Graduate Assembly of North America will cover a territory including the chief clinic cities of Italy, Switzerland, Germany, Austria, Czecho-Slovakia, Holland and Belgium. Invitations have been extended the physicians in this party by leading medical universities and institutions of the countries named. The members of the party will sail from New York on April 28th and will go at once to Paris where the clinic assemblies start.

The assemblies are open to members of the profession who are in good standing in their State societies. The party will be limited to five hundred members, including members of the physician's families. Physicians may return home on three separate sailings.

If interested, write at once to the Managing Director, Dr. W. B. Peck, Freeport, Ill. The secretary general, Dr. Carl Beck, of Chicago, is now in Europe, completing the clinic arrangements for the assemblies.

A second section of the assemblies for a limited number will be conducted during the summer months for those who are unable to take advantage of the April sailing. Members of this party will leave New York on June 19th, and returning, sail from Antwerp on August 13th.

Dr. Homer Henkel,

Staunton, Va., went to Johns Hopkins Hospital, Baltimore, in January, for treatment.

Dr. Frank Hopkins,

Of Hot Springs, Va., who sailed sometime ago from New York via Panama Canal for California for a vacation, expects to return home about the 19th of this month.

"A Prophet Not Without Honor."

The civic organizations of Nashville, Tenn., have a custom of selecting each year a citizen to be known as the leading citizen for that year. For 1925, this honor was bestowed upon Dr. William D. Haggard, President of the American Medical Association. He was awarded the Kiwanis loving cup, which is considered the highest civic honor he may receive.

The American Guardian Association

In appealing for funds to help care for the abandoned children of Americans in the Philippines, whose fathers have died or gone away and left the children with their native-born mothers who are unable to care for them properly. Many of these children are typically American in appearance and their mentality is such that it is believed, with proper care and education, they will do much for the social regeneration of the islands.

It costs \$15.00 a month to educate a girl and \$12.50 a month for a boy. There are at least 2,500 in need of attention at this time, though the American Colony in the Philippines is helping as much as it can. Checks should be made payable to Corcoran Thom, Treasurer, American Guardian Association, Room 506,

815 Fifteenth Street, Northwest, Washington, D. C.

New York's Medical Center.

A year of construction work finds the vision of a great Medical Center in New York approaching realization. The general problems connected with the launching of such a project are in hand and building progress is satisfactory.

Ground was broken for the first unit of the Medical Center on January 31, 1925. This was the combined building which will house Presbyterian Hospital, Sloane Hospital for Women and the College of Physicians and Surgeons. It will cost upwards of \$10,000,000.

In spite of difficult excavation, the sub-surface formation being mostly limestone, the construction of this building has proceeded to the point where sixteen tiers of steel are in place for the twenty-two stories of the hospital part of the building. Two floors and a part of a third will be utilized by Sloane Hospital.

Adjoining the Presbyterian-Sloane combined hospital is the Harkness Private Patient Pavilion, a \$1,500,00 structure donated by Mrs. Stephen V. Harkness and her son Edward S. Harkness. Work on the pavilion has proceeded rapidly and its outer shell is practically finished.

The medical college will have thirteen full stories and a tower. It will be connected with the hospital by an axis of the same height. Steel has been erected for the first four floors where the Departments of Administration, Public Health, Physiology and Bio-Chemistry will be located.

Wide interest is being displayed in the New York State Psychiatric Institute and Hospital which will be one of the institutions of the Center. It will be used by the State for research in the causes and treatment of mental disease. Plans drawn in the State Architect's office have been approved and specifications for bidding are being completed. Only cases of special scientific interest will be housed in the Psychiatric Institute, others being sent to the regular State Hospital.

The Vanderbilt Clinic, now at Sixtieth Street and Tenth Avenue, will be a part of the Medical Center Out-Patient Department, excavation for which has begun.

Sketch plans are being developed for the Neurological Institute, another hospital of the Medical Center. The Institute is now located

on East Sixty-seventh Street. A building program is being developed for Babies Hospital which will also move to the Center.

It is expected that the institutions of the Medical Center will be in operation late next year.

Public Health Service Announces Strip Film Views of Syphilitic Lesions.

The United States Public Health Service has recently announced the release of strip film views illustrating lesions of syphilis and of skin diseases simulating syphilis. The preparation of these pictorial studies in such convenient and serviceable form was made possible through the courtesy of a number of eminent syphilologists and dermatologists whose private collections of photographs were used in making the strip film pictures. The views are taken from both acquired and congenital cases. They depict not only the usual genital and extra-genital lesions but a number of rare and unusual views are also shown.

According to the Surgeon General's announcement, the plan for using this new facility contemplates its distribution through the various State boards of health to medical societies, medical schools and hospitals. It is believed that the presentation of these views will prove an effective means of increasing the interest and assistance of physicians and others in the furtherance of the co-operative venereal disease control program. The Public Health Service is preparing a number of copies of each film so that each State board of health may be supplied. These films are not for sale, but are released to State boards of health for extended periods.

Dr. William R. Weisiger,

Richmond, Va., has moved his offices from McGuire Clinic, to Medical Arts Building, this city, where he will continue his practice in diseases of the eye, ear, nose and throat.

Dr. William Charles White,

Washington, D. C., chairman of the Medical Research Committee of the National Tuberculosis Association, gave a talk in Richmond, February 5, in which he told of the work of this committee.

Lt. Comd. Micajah Boland, M. C., U. S. N.,

Who spent November and December at the New York Post-Graduate Medical School, taking a special course in physical diagnosis, has resumed his duties at the Naval Operating Base, Hampton Roads, Va. In spite of his

various appointments, while in the service, Dr. Boland has retained membership in the Society of his native State—the Medical Society of Virginia.

Dr. William S. Thayer,

Of Johns Hopkins, Baltimore, delivered an address before the Norfolk County, Va., Medical Society, on the evening of January 30th, his subject being "The Medical Education of Jones."

Dr. John R. Guerrant

Announces that his postoffice address is now Dillons Mill, Va., instead of Wirtz, Va.

Petersburg, Va., Hospital.

At the annual meeting of the Board of Directors of this hospital, in January, an excellent report was submitted of work accomplished during the past year. The most important improvement made in the institution was the opening of a well-equipped seven-room maternity department. The medical members of the board of directors are Drs. Mason Romaine, Wright Clarkson, and John M. Harwood.

Herter Lectures to be Given by Dr. Brouwer.

Dr. B. Brouwer, professor of neurology at the University of Amsterdam, Holland, has accepted the invitation to deliver the annual lectures under the Herter lectureship fund at Johns Hopkins University, Baltimore, in April.

Dr. Everett F. Long,

Raleigh, recently deputy State Health Officer of North Carolina, tendered his resignation, effective December 31, 1925, in order to engage in private practice. Dr. Long is an alumnus of the Medical College of Virginia, in the class of '09.

Dr. David B. Stuart,

Dublin, Va., of the class of '24, Medical College of Virginia, is at present assistant to Dr. J. R. Blair, at Hygeia Hospital, Richmond, Va.

Automobile Fatalities.

During the fifty-three week period from December 28, 1924, to January 2, 1926, inclusive, there were reported 6,370 automobile fatalities from seventy-nine large cities, or a daily average of 17.2, which rate was a little higher than the previous year. New York City reported 1,001 automobile fatalities and Chicago came next with 598. Reports from twenty-four cities indicate that 25 per cent of the automobile fatalities in these cities were due to accidents outside of the city limits, the victims

being brought into the city for hospital attention.

Dr. Wiley W. Koontz

Announces that his address is now Dayton, Va., instead of Spring Creek, Va., as formerly.

Dr. John S. Lawrence,

Of the class of '21, University of Virginia, is Research Fellow in the Massachusetts General Hospital, Boston, working in the laboratory of Dr. A. V. Bock.

Dr. Edward D. Davis,

Winchester, Va., but formerly of Harrisonburg, Va., and Hagerstown, Md., has been elected president of the Newtown Giant Incubator Corporation.

Dr. Elvin H. Hearst,

Of the class of '25, Medical College of Virginia, after serving as an interne at Petersburg Hospital, Petersburg, Va., has located at Bristol, Va., Route 1.

Passenger Steamer to Have Hospital Accommodations.

The Malolo, a passenger steamer now being built at Cramp's Shipyard, Philadelphia, is to have a passenger hospital which will include two wards, a bath, dispensary, operating room and attendant's room. The crew hospital will have a ward and bath. Each of the passenger wards will accommodate four persons, while the crew's will have accommodations for six. The operating room will have all features necessary for an up-to-date hospital. It is expected that this vessel will be finished in the Spring of 1927. It will be placed on the San Francisco-Honolulu run. Her speed will enable her to make the round trip in four days less than the fastest vessel now plying between these ports.

Virginia's State-Supported Colleges.

The Central Committee on the Institutions of Higher Education in Virginia, with headquarters in Grace-American Building, Richmond, Virginia, has issued a most interesting booklet on "Important Facts about the State-Supported Colleges of Virginia," which is for the information of the public. It tells of the wonderful gain in college enrollments in the past five to thirty years, and especially since the State began to standardize its high schools. Unless colleges are enlarged, they cannot keep pace with the development of the high schools, and it becomes urgently necessary that the State increase appropriations to State-supported colleges in order that Virginia may

keep pace with the strides made by similar institutions in other States.

Dermatology Number.

The Medical Review of Reviews, with editorial offices at 7 West 16th Street, New York City, announces that its March issue will be a special Dermatology Number, which will be personally supervised by Dr. Herman Goodman, of New York. The tentative Table of Contents indicates that the March issue will be of unusual interest as to its original communications and editorials. The price of this journal is \$2.00 a year or twenty-five cents for a single copy.

Dr. Gladys Smithwick,

Of the class of '25, Medical College of Virginia, after being connected with the staff of Catawba Sanatorium, Va., for several months, has accepted an appointment on the interne staff of Roanoke Hospital, Roanoke, Va., and entered upon her duties there in January.

Appointed on Committees of Covington Kiwanians.

Drs. B. R. Hudnall, E. R. Rogers, and J. V. Jordan, all of Covington, Va., have been appointed members of committees in the Kiwanis Club of that place for the coming year.

Mrs. Smith Succeeds Husband as Member of State Board of Health.

Mrs. William Morgan Smith, of Clarke County, Va., was recently appointed a member of the State Board of Health to fill the unexpired term of her husband, who died the latter part of December.

Dr. William T. Graham, Richmond, vice-president of the Board, is acting president until the next meeting.

Dr. and Mrs. Will J. Knight,

Newports News, Va., left by automobile, the latter part of January for Florida. They expect to be away several weeks.

Dr. W. W. Wilkinson,

La Crosse, Va., was re-elected vice-president of the Bank of La Crosse, at its annual meeting in January.

Dr. J. P. Trent

Was a visitor in Washington, D. C., last month.

Emory University to Raise \$4,500,000 for Medical Education.

Medical education is to receive a total of \$4,500,000 from the \$10,000,000 Expansion Fund now being raised by Emory University, Atlanta. This money will be distributed as

follows: Endowment for the School of Medicine, \$2,000,000; endowment for the Wesley Memorial Hospital, \$2,000,000; Pathology Laboratory and Hospital Administration Building, \$225,000; Nurses' Home, \$200,000; completion of Chemistry Building, \$75,000. The goal of the campaign as a whole is to provide \$6,500,000 in endowment and \$3,500,000 in new buildings to cover the estimated needs of all six schools of the University for the next ten years.

The Emory School of Medicine, formerly the Atlanta Medical College, has long been one of the three largest and strongest A-grade medical colleges in the South. It has a total of 3,400 alumni now practicing in all states of the union but two. Dr. Russell H. Oppenheimer is dean of the faculty of 130 men, among the part-time members of which are some of Atlanta's most eminent physicians and surgeons.

For many years the school has been handicapped both in research and teaching work because of inadequate endowment. The enrollment in each class has been limited to sixty men at a time when more physicians of Georgia alone are dying each year than the two medical colleges of the state are graduating. The school is looking to its alumni and to the other friends of medical education to give the funds so urgently needed for expansion.

Dr. R. L. Mason,

Roanoke, Va., was recently elected chairman of the board of trustees of Roanoke Lodge No. 197, Benevolent and Protective Order of Elks.

Civil Service Examinations,

The U. S. Civil Service Commission, Washington, D. C., announces the following open competitive examinations, applications to be rated as received:

Medical interns (psychiatric);

Dietitian;

Medical officers;

Occupational therapy aide and occupational therapy pupil aide;

Graduate nurse and graduate nurse (visiting duty).

Full information and application blanks may be obtained from the above named Service, or the secretary of the board of U. S. Civil Service Examiners at the postoffice or custom house in any city.

For Sale—

At a bargain. Owners offer one Scheidel

Western X-ray transformer with control board and one Victor Horizontal Fluoroscope table. \$275.00 cash gets both. Box 34, Lynchburg, Va. (Adv.)

For Sale—

Virginia \$7,000.00 practice and property. Tidewater town of 1,200. Rich country. Competition right. Practice easily increased to full capacity. Modern brick residence, offices and garages. Good roads, churches and schools. Model community. Price \$5,000.00, requires \$3,000.00 or for practice only \$1,000.00. Will introduce and assure full co-operation and support of one or two drug stores. Best buy in the State. No triflers. Must get quickly. Specializing. Address, T. H. Massey, M. D., Smithfield, Va. (Adv.)

Wanted.

Young lady, age 25, wants position in doctor's office in Virginia. Have had two years' hospital training, and four years' experience in clerical work.

Address Miss E. A., 1112 West Avenue, Richmond, Va., (Adv.)

For Sale or For Rent.

Because of the untimely death of Dr. George T. Divers, the St. Martin's Hospital, of Stuart, Virginia, offers an excellent opportunity for some doctor and surgeon.

The building has all modern equipment, steam heat, electric lights and water, beautiful grounds, adequate room for forty patients, rooms with or without bath, located near the corporate limits of the town of Stuart, in one of the most beautiful and healthy sections of the Blue Ridge. Fireproof building erected in 1923.

For particulars, write R. Paul Sanford, Attorney, Stuart, Virginia. (Adv.)

For Sale—

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Obituary

Dr. George Grattan Painter,

Of Pulaski, Va., died at his home in that place January 23rd, following a prolonged illness. He was a native of Southwest Virginia and sixty-nine years of age. Upon completion of his academic education, he studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1883. He had been a member of the Medical Society of Virginia since 1889. Dr. Painter was also prominent in the social and business life of his section, was several years a member of the Pulaski town council, had served for many years as a director of the Peoples National Bank of that place, and was an elder in the Presbyterian Church. His widow and several children survive him. He was a brother of Dr. W. G. Painter, of Big Stone Gap, Va.

Dr. John Randolph.

We were only recently advised of the death, early last Fall, of Dr. John Randolph, of Arvon, Va., at the age of sixty-seven years. He was a native of Albemarle County, Va. Upon completion of his academic education, Dr. Randolph took up the study of medicine and received his diploma from the College of Physicians and Surgeons, Baltimore, in 1879. He had been a member of the Medical Society of Virginia since 1890. His second wife and four children by a former marriage survive him. Dr. Randolph was for a number of years a member of the Buckingham County Board of Health and was also secretary of the Buckingham County Medical Society.

Resolutions on Death of Dr. W. M. Smith.

At a called meeting of the staff of the Alexandria Hospital, held December 22, 1925, the following resolutions were unanimously adopted:

RESOLVED, That the members of the staff of the Alexandria Hospital have learned of the death of their fellow member and personal friend, Dr. William Morgan Smith, with deep regret. Doctor Smith has been one of the most useful and valued members of the staff for many years and his loss to the hospital will be keenly felt. His professional ability, upright character, kindly courtesy, and geniality endeared him to the community and every member of the staff, as well as the entire personnel of the hospital, regards his death as a personal loss.

RESOLVED, That copies of these resolutions be entered on the minutes of the staff of the Alexandria Hospital, published in the VIRGINIA MEDICAL MONTHLY and sent to Dr. Smith's family.

GEORGE T. KLIPSTEIN,
LLEWELLYN POWELL,
F. M. DILLARD,

Committee.

WHEREAS, Almighty God, in His far-seeing wisdom, has seen fit to remove from our midst our beloved friend and brother practitioner, Dr. William Morgan Smith; therefore,

BE IT RESOLVED, That the Alexandria Medical Society, at a called meeting, December 22, 1925, now state in formal terms our deep regret at this distressing visitation to our city and state. We wish also to express our personal affliction at this untimely catastrophe.

BE IT FURTHER RESOLVED, That a copy of these resolutions be forwarded to his afflicted widow and family, and that these resolutions be spread on the minutes of the Society.

HUGH MCGUIRE,
MARTIN D. DELANEY,
S. B. MOORE,
Committee.

Resolutions on Death of Dr. C. H. Lewis.

The Richmond Academy of Medicine, at a meeting on January 12th, adopted the following resolutions on the death of Dr. Charles Howard Lewis, of Richmond:

They brought many a floral wreath; they let fall many a tear; they mourned as they stood by his bier, a concourse of patients, friends and fellow-practitioners, as the funeral rites were pronounced over the late DR. C. HOWARD LEWIS, of this city, who died after a brief illness, Sunday, the third of January, 1926, in the 49th year of his age.

Our late colleague was a general practitioner of medicine. As a successful and a prominent physician his career was noteworthy, and this is no mean end to achieve in the short space of twenty years. Dr. Lewis, as a member of the Richmond Academy of Medicine, lived up to the high standards of ethical practice and followed in his daily work the tenets of medical fellowship. During the score of years in which he served this community, he drew to his service a long roll of patients. These he attended faithfully and skilfully.

Those of us who enjoyed association with him in consultation are able to add a note of personal appreciation of the devotion of his patients to him and of the care and skill exhibited by him in his professional work. Dr. Lewis will be remembered by patients and friends for his unswerving high purpose, his indefatigable industry and for the high order of his professional attainments, as a medical practitioner, and as a member of this organization. His memory is honored for these qualities of mind and heart.

But the life of our colleague was more than this: his spirit was cast in a heroic mold; he was a patriot, brave and unafraid and ready. A veteran of the Spanish-American War and a veteran of the great World War, and twenty years of medical practice, and dead before fifty, is a record of distinguished patriotism that must challenge the admiration of all. When but a boy, he valiantly volunteered and served his country in the Spanish-American War. In the fulness of a busy practice he organized and commanded an ambulance corps, and later a sanitary train, in the great World War. The story of his heroic service on the battle-fronts in Cuba and in France may never be told, but we, his colleagues in this society, honor his memory as a fellow-doctor, and as an American patriot of whom we are proud. And so,

WHEREAS, It has pleased an all-wise Providence to terminate the career of our late distinguished

fellow, C. Howard Lewis, by sudden death in the hour of full professional usefulness, therefore,

BE IT RESOLVED, That our sympathy be extended to his bereaved loved ones in this hour of their sorrow;

That a page of the minutes of the Richmond Academy of Medicine be dedicated to his memory; and

That a copy of this preamble and these resolutions be sent his family, and that they be printed in the VIRGINIA MEDICAL MONTHLY as a public mark of respect and affection.

(Signed)

A. L. HERRING,
JAS. H. SMITH,
A. G. BROWN, JR.,
Committee.

Dr. John R. Atwell,

Wicomico Church, Va., a former member of the Medical Society of Virginia, died in Washington, D. C., January 6th. He was a native of Washington and fifty-two years of age. He graduated in medicine from the National (now George Washington) University, in 1898. His wife survives him.

Dr. Cassius Dulany Laws,

Of Bayard, Va., died suddenly of heart disease, December 21, 1925, at the age of sixty-eight years. He graduated from the University of Maryland School of Medicine, Baltimore, in 1877, and was at one time a member of the Medical Society of Virginia.

Dr. Romulus Z. Linney,

A prominent proctologist of Charlotte, N. C., died suddenly of apoplexy at his home in that place, January 19th. He was forty-nine years of age and a graduate in medicine from Georgetown University, School of Medicine, in 1901.

Dr. Archibald Cunningham Harrison,

Professor of surgery in the University of Maryland, School of Medicine, Baltimore, died at his home in that city, January 17th, death being due to heart disease. He is survived by his wife and three daughters. Interment was made in New Kent County, Virginia, his native home. He was sixty-one years of age. Dr. Harrison was educated at University of Virginia and the University of Maryland, taking his diploma from the last named school in 1887.

Dr. James E. Roles,

Of Union, W. Va., died in Richmond, Va., December 10, 1925, at the age of fifty-two years. He was graduated in medicine from Medical College of Virginia, Richmond, in 1897.



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Virginia Medical Monthly

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RICHMOND, VA., MARCH 1926

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RICHMOND, VA., MARCH, 1926

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Original Communications

STRICTURE OF THE URETER.*

By C. J. ANDREWS, M. D., F. A. C. S., Norfolk, Virginia.

Stricture of the ureter has been the subject of considerable discussion since the pioneer work of Hunner and the publication of his paper in 1915. These discussions have not, so far, resulted in anything like unanimity of opinion regarding it. It was claimed that the first work published submitted too little X-ray and pathological evidence. Later, many ureterograms and pyelograms and some pathological evidence have been submitted by Hunner and other observers. The criticism made of these was that the constrictions shown by the picture were due to spasm of the ureter, rather than stricture. It would appear that eventually the truth of this matter would be established, not by X-ray and pathological findings alone, but by clinical experience, not only by a few who might be over-enthusiastic, but by a larger number of observers.

The purpose of this paper is to submit such clinical evidence as I have been able to obtain from observation and study of fifty-five cases.

The widespread dissemination of information regarding appendicitis very properly long ago caused everyone to think first of appendicitis in all cases where pain was present in the right lower quadrant. We now know that a very large number of people were operated upon unnecessarily for appendicitis. Routine urinalysis and X-ray in chronic cases showed the trouble in many of these to be in the urinary tract. These are not sufficient to exclude stricture. Thirty-eight of my cases, or 68 per cent, showed a negative urine. X-ray showed calculus in four cases.

PREVIOUS OPERATION: Forty operations had been done on twenty-seven of these patients, as follows: Eighteen appendectomies, five cholecystectomies, nine salpingectomies, one nephrotomy, five ovariectomies and one uterotomy. It is not believed that all these opera-

tions were useless, but the fact remains that the pain for which the operations were done was not relieved.

SYMPTOMS: Pain was the one constant symptom in all cases. Four were typical kidney colics, frequently recurring. This does not include cases with ureteral calculi. Pain was usually located in the groin or kidney region, often radiating to the inner thigh or hip. The pain is oftener found in the right side, although the stricture is usually bilateral. The reason for this is not apparent. Lumbar backache was common. Urinary symptoms were present in forty-three cases, twelve having no frequency or painful urination. In some of these cases this was the most urgent symptom, and the last to be relieved. Urinalysis showed evidence of pus in the urine in seventeen cases only. Cultures were positive in some cases in which no pus was found. There was a history of pyuria in twenty-three cases, probably all of them had had pus at some time. Gastro-intestinal symptoms were marked in fifteen cases, two cases having persistent vomiting. Thirteen cases complained of persistent headaches. Dysmenorrhea was associated in fifteen cases. These probably were not uterine dysmenorrheas, but due to congestion of stricture area during period. Some were exceedingly severe and of long standing, requiring morphine for relief. Menorrhagia was observed in several cases, and cleared up as the condition was relieved. Endocervicitis has been associated in twenty cases. This would suggest that as a focus of infection the cervix may be a frequent offender. There was a definite history of old gonorrhea in two cases. Both of these were persistent, and the urinary symptoms severe.

DIAGNOSIS: Stricture is suggested by the outstanding symptoms; pain, particularly in the kidney or ureteral region, especially if of long standing and with a history of unsuccessful operations for its relief. The search of the ureter for stricture is very much the same as the examination of the male urethra with olive bougies. The latter has never been con-

*Read at the fifty-sixth annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

sidered a very difficult or indefinite procedure. The use of the wax bulb in the ureter gives the same evidence. When the bulb is withdrawn there is a definite hang, which usually reproduces the pain which the patient recognizes as the old familiar pain. In some cases the lumen is so small that a filiform is passed with difficulty, but may admit a No. 8 catheter with comparative ease, and yet the bulb shows a definite stricture. The bulb also gives evidence of calculi if scratches are noted. The X-ray to exclude calculi is always safe. Ureterograms and pyelograms are interesting, but if the kidney pelvis capacity is normal they are not essential to working diagnosis of stricture.

The Kelly method of cystoscopy offers very definite advantage in diagnosis and treatment of these cases. The bulb does not need to be so near the end of the catheter, and can be made longer. A short bulb is very satisfactory for the diagnosis of stricture, but the longer dilator of increasing size is better for dilating. This effect is obtained by the long wax bulb.

AGE: The youngest patient treated was seventeen, the oldest sixty-eight. Three were under twenty, nineteen between twenty and thirty, seventeen between thirty and forty, seven between forty and fifty, eight between fifty and sixty, and one over sixty.

SEX: All were women.

RELATION TO PARTURITION: Twenty-four, only, had given birth to children, although thirty-three were married, or had been. In three the stricture with urinary tract infection or pyelitis of pregnancy seriously complicated pregnancy. In all three the condition remained after pregnancy, and treatment of the stricture was necessary before the patients were well. It is probable that if the histories of eclamptics or kidney deficiencies during pregnancy were carefully studied, many would show a definite history of stricture. I can recall such instances. It is very common during pregnancy to have patients complain of pain in the right lower abdomen, radiating to hip, and often to kidney region. This is believed to be due to pressure on the ureter, either with or without stricture.

PROGNOSIS: Twenty-five of these patients are considered cured, twenty are improved, two are not improved, five, result not known, three, not sufficient time for expected change. Many of the improved cases will evidently be included in the cured list, as they will receive other treatments as needed. Some have been

discouraged by the pain following the first treatment, and have not returned, but the most, when convinced that the trouble has been located, and that there is a possibility of relief, are most persistent in their efforts and co-operation. When these patients are relieved, the improvement in general health is often very marked. A definite gain in weight is very common. The relief from pain and improved kidney drainage both probably contribute to this.

The following cases are illustrative of several types of stricture:

(486)—Mrs. J. T. G., aged 41. *Complaint*—Headache and pain in back. *Present illness* goes back four years. At that time patient began to have pain in the lumbar region, radiating forward and downward. Onset began with severe bladder irritation, frequency and blood in urine. The blood and frequency cleared up, but patient continued to have pain. *X-ray examination* revealed a small calculus in the right ureter. Several attempts to remove this failed, and patient continued to have pain and soreness. During the past year her headaches have been severe, and she has lost some weight, feels weak and tired, fatigues easily, and there is a mild digestive disturbance.

Physical examination showed a slender, undernourished woman, who was evidently in poor general health. Physical examination was essentially negative except for a definite tenderness just over McBurney's point and the right kidney, which was easily palpable and freely movable.

Laboratory examination showed completely negative urine, normal haemoglobin, red count, white count and normal differential.

Cystoscopic examination:—A No. 5 X-ray catheter was introduced about 8 cm. from the ureteral opening, and was obstructed. The X-ray picture showed that this was about 4 cm. from the stone. This showed that the calculus was not the real obstruction, but that the stricture was. This ureter has been gradually opened until a No. 6 mm. bulb can be passed through the ureter. The patient's symptoms have been entirely relieved, her general health greatly improved, although the calculus has not been passed unless this has been done since the patient was seen last, several months ago.

(390)—Miss E. S., aged 17. *Complaint*—Pain in the back. This patient had had a series of acute illnesses. In addition to the

usual infections of childhood she had typhoid fever at the age of eleven, scarlet fever at twelve and diphtheria at thirteen. She had several attacks of tonsillitis as a child. Always rather thin. No digestive disturbance. Periods began at thirteen, and were regular in duration and amount, always associated with pain and cramps at the time of onset. These pains were especially intense in the right side. There was no history of bladder symptoms. On account of the severe recurring attacks of pain, associated with nausea and vomiting, her appendix had been removed two years ago. She was apparently relieved for a short time following the operation, but pain in the back and right lower quadrant returned, and has been present ever since. Pain is most marked in the region of the right kidney, and radiated downward to the groin.

Physical examination showed infected tonsils. No abnormal tenderness in the right lower quadrant, and no tenderness elicited over either kidney. Cervix was definitely infected.

Laboratory examination showed urine negative except for a trace of albumin, haemoglobin 86 per cent with a corresponding decrease in the red cells. White count was 9,500 with 52 per cent polys and 44 per cent small mononuclears. Wassermann was negative. Stool was negative for parasites. Stomach contents were normal.

Cystoscopic examination:—A No. 6 catheter passed right ureter without particular difficulty. Kidney pelvis normal capacity. No. 9 bulb gives definite hang at a point just above pelvic brim, and near the ureteral opening. Patient stated that the pain caused by the passing of the catheter through this constriction was identical with the pain which she had suffered for a long time. This ureter was gradually dilated to a 4 2/3 mm. plus lumen. Altogether she received four dilatations at about two weeks' intervals. During this time a large cervical erosion was treated with cautery.

Investigation of the left side showed that patient also had a very definite stricture on the left side. This was dilated. The patient's pain has been entirely relieved, as has also the nausea and vomiting. Pain with periods has also disappeared.

(183)—Miss E. A. L., aged 26. *Chief complaint*—Pain in lower abdomen, particularly in right groin, radiating to hip during periods. These pains have been more or less severe since

periods began at the age of thirteen, and have increased definitely during the last few years. Four years ago an acute appendix was removed. Of course, no change in painful periods followed this. Three years ago, the pain becoming more severe during periods, the cervix was dilated and the round ligament suspension of retro-displaced uterine was done. These pains were better for a few months, gradually becoming worse. In November, 1924, the cervix was dilated, internal os incised after the method of Cleland. There was practically no improvement except for a very short time. The pain in this case was so great that a half grain of morphine was required, and it was often necessary to repeat it before any relief could be obtained. On May 19, 1925, a No. 7 ureteral catheter was passed to the right kidney. A No. 11 bulb gave a definite hang at six and three cm. from ureteral opening. Pain from this the patient recognized as the same pain from which she had suffered so severely at periods. This ureter was dilated to a 5 lumen. She has now had several periods without pain. This was never a very typical obstructive dysmenorrhea, as the pain would continue often for twelve hours after a free flow was established.

(228)—Mrs. C. J. G., aged 24, married seventeen months. Abortion in December, 1923, two months' gestation. March, 1924, operation, right tube and ovary removed. *Chief complaint*—Pain in left lower abdomen and urinary frequency. Periods regular, ten days' duration and excessive flow, large clots. Pain with periods severe, bearing down in character. *Digestive symptoms*:—Nausea persistent. Tonsils, chronic infection. Catheterized specimen of urine normal. Left adnexa showed a mass about 6 cm. by 4 cm. in size, exceedingly tender on pressure. On account of severe urinary symptoms cystoscopic examination was made. Urethra small, trigon somewhat injected. Left ureter admitted No. 6 catheter to a point near pelvic brim, where it was obstructed. A No. 5 catheter passed into the kidney. Kidney capacity normal. Later a wax bulb passed the obstruction giving a definite hang at this point on withdrawal. Patient stated that the pain caused by this dilatation was the same as that from which she had constantly suffered. X-ray examination was negative. This stricture was dilated to a 4 mm. size. The patient's pain in the right abdomen was so great and disturbing that it was felt at this time that the

mass in the abdomen was influencing the condition so greatly that she was operated upon, the left tube being removed. This tube was nodular, and evidently useless. The ovary was rather large, and formed a considerable portion of the mass. Apparently the patient was not benefited at all by this operation. Later, the ureters were dilated to a 5 plus lumen, after which all the patient's symptoms disappeared. She received her last treatment about six months ago, and is now perfectly well.

(169)—Miss S. F. R., aged 28. *Chief complaint*—Pain in the right lower abdomen, radiating to pubis. This pain also radiated to the right hip and kidney region, and had continued for several years. Appendix removed eighteen months ago without relief. Urinary frequency had continued for several years. Periods, severe pain before flow began.

Examination:—Right kidney sensitive to palpation, as was also the ureter, particularly near pelvic brim. Pelvic examination showed uterus retro-displaced.

Cystoscopy:—No. 6 catheter passed right ureter with marked resistance, particularly above pelvic brim. Urine from this kidney was entirely normal. Ureter was dilated to a 4 plus size, after which the patient was relieved.

(205)—Mrs. A. D. D., aged 32, married nine years, one child 7½ years old. *Past history*:—Ureteral calculus removed from right ureter 2½ years ago. No other illness. *Chief complaint*:—Headache severe during past month. Pain in right kidney region, radiating to hip, urination painful. Urine contained a large amount of pus.

Cystoscopic:—Urethra normal. Bladder showed considerable injection of vessels. No. 5 catheter was obstructed above pelvic brim. A filiform was finally passed at another sitting, and the ureter gradually dilated. This patient's symptoms have all been relieved. This was possibly a traumatic stricture secondary to opening of the ureter. It is not unlikely, however, that stricture was the original trouble, and the calculus secondary.

CONCLUSIONS

1. Ureteral stricture is a relatively common condition.

2. No patient should be operated upon for chronic pain in the lower abdomen without first considering stricture. If stricture cannot

be reasonably excluded, the ureters should be investigated.

305 Medical Arts Building.

URETERAL STRICTURE.*

By WALTER B. MARTIN, M. D., Norfolk, Virginia.

In presenting some points in reference to ureteral stricture from the standpoint of the internist, it is not intended to go into any exhaustive discussion of the subject nor to invade the domain of the cystoscopist. Rather I wish to emphasize certain points in the general examination and study of cases that present themselves that may lead to the probable diagnosis of ureteral stricture. Such cases can then be referred to a competent cystoscopist for final proof of the existence of stricture. I believe that a diagnosis of ureteral stricture can often be correctly made from a consideration of significant points in the history and physical examination. In other cases the evidence may not be entirely convincing, and yet sufficient to justify subjecting the patient to cystoscopic examination. It is the purpose of this paper to construct a clinical picture that may be of assistance to the general man in recognizing this condition.

The material consists of twenty cases that came in for general diagnostic study. This routinely consists of a detailed history, past and present, complete physical examination, complete blood, blood Wassermann, stool and urinalysis. In appropriate cases more extensive laboratory examinations were made. A clinical diagnosis of stricture was made in each instance and confirmation was obtained by cystoscopic examination. These patients came in with a variety of different complaints and were not, except in a few cases, previously known to have had kidney trouble. In nine instances, or 45 per cent, no reference was made to the urinary tract in the initial complaint, but emphasis was laid on such symptoms as fatigue, loss of weight, stomach trouble, rheumatism, headache and general malaise.

These patients were all women and varied in age from seventeen to sixty-eight years. The most frequent symptom brought out in the detailed history was pain in the back in the kidney region (95 per cent). This pain radiated to the groin in 75 per cent, and down the leg or to the hip in 20 per cent. Bladder

*Presented as a corollary to the paper on "Stricture of the Ureter," by Dr. C. J. Andrews.

symptoms were present in 65 per cent, but the fact that they were absent in 35 per cent is probably more significant. Loss of weight was noted in 45 per cent, headache 60 per cent, fatigue and general malaise 60 per cent. Certain digestive symptoms were emphasized in a considerable number of cases; gas 55 per cent, indigestion 45 per cent, nausea 35 per cent. To a surprising degree urinary findings were devoid of significance. In only 15 per cent of these cases was pus found in the urine at the initial examination. In 40 per cent the urine was entirely negative. The remaining 45 per cent, with the exception of one specimen containing blood, showed only a trace of albumin, with an occasional specimen that contained a few casts. All of these examinations were made on fresh specimens obtained at the office.

Complete blood examinations were made on all of these cases. Haemoglobin below 85 per cent was found in 40 per cent, and the average haemoglobin was 86.5 per cent, showing a slight tendency to anaemia. With the exception of two cases the white blood count ranged from 5,100 to 9,500. These two cases showed a leucocytosis of 12,800 and 13,500 respectively, despite the fact that they were both afebrile and that one of them showed no pus in the urine. It seemed apparent that the leucocytosis was a consequence of the stricture as the elevation persisted until the stricture was relieved, and thereafter promptly returned to normal. The differential counts are interesting but probably of little significance in an individual case. Excluding the two cases with definite leucocytosis, the polymorphonuclear cells averaged 57 per cent, small mononuclears 34 per cent. These figures are a distinct departure from the average normal.

It is significant that in 40 per cent of these patients the appendix had been removed without relief of symptoms. This is not surprising when we consider the clinical picture that they present. Given a patient with chronic digestive disturbance, gas, occasional nausea, pain in the right lower quadrant, tenderness over the right ureter, and a negative urine, how could one expect to escape the sharp scalpel of the eager surgeon? I do not mean to question the necessity of swift intervention in cases of acute appendicitis. The risk to the patient is too grave to warrant delay. In chronic right lower quadrant pain, however, the possibility

of ureteral stricture should always be considered and it should be definitely disproven before operation is undertaken.

In presenting abstracts of the detailed record of certain cases of ureteral stricture I hope to illustrate some of the important points in the diagnosis of that condition.

B. P., female, seen July 15, 1925; age 28; *complaint*, pain in right side and general malaise. *Past history* not significant as related to present illness except that in February, 1925, she had a severe sore throat. *Present illness* dates from November, 1924, when patient had an attack of influenza; she does not think she has been well since then. She has lost ten pounds in weight, appetite has been poor, feels tired and fatigued all the time. No chronic cough or night sweats. Pain in region of right kidney radiating down toward the bladder and through to the back beneath the right shoulder. For one day only there was some bladder irritation with frequency.

Physical examination shows a slender, poorly nourished young woman, evidently in poor general health. Tongue heavily coated, tonsils small, deeply buried, and infected. Slight enlargement of thyroid. Lungs clear throughout; heart normal; pulse rate 80; blood pressure 110/70.

Definite tenderness on bimanual palpation over the right kidney, and slight tenderness along the course of the right ureter. Genitalia negative; extremities and reflexes normal. Laboratory examination showed a haemoglobin of 90, normal white count and normal differential. Urine showed a trace of albumin and a few pus cells. Wassermann was negative and stomach contents normal.

The patient was referred for *cystoscopic examination* with the following report: "This case was found to have a very dense ureteral stricture at or just above the pelvic brim, which admitted with great difficulty a No. 5 olivary tipped bougie but finally was dilated to No. 6 French. The renal pelvis showed some dilatation, the contents being 20 c.c. The aspirated specimen from the right kidney showed pus in clumps."

It is of interest to note that while this patient had been in poor health since November, 1924, the pain in the kidney region originated only one week prior to her examination, and that she had bladder symptoms for one day only. The degree and density of her

stricture would certainly indicate that it was a condition of long standing. Since the original cystoscopic, she has been dilated several times with marked benefit to her general condition and relief from pain. Permanent relief, however, has not been obtained as the stricture shows a marked tendency to recur.

E. S., age 17; *complaint*, pain in back. This patient has suffered from a series of acute illnesses in addition to the ordinary infections of childhood. She had typhoid fever at eleven, scarlet fever at twelve, diphtheria at thirteen. Several attacks of tonsillitis as a child. Periods began at age of thirteen, regular in duration and amount. They have always been associated with severe pain and cramps, especially on the right side. She has also suffered for a long time with pain in the back on the right side, and pain in the right lower quadrant. No polyuria or dysuria. Appendix removed two years ago following attack of pain in right lower quadrant associated with nausea and vomiting. She was apparently relieved for six months following operation, but pain in back returned about eighteen months ago and has been present practically ever since. This was located in the lumbar region, extending downward and more marked at time of periods. In December, 1924, patient began to have attacks of nausea and vomiting similar to those which were experienced prior to her appendectomy. These continued up to six weeks ago when she was apparently relieved by abdominal support. Pain in back has become more severe and continued up to the present time. There has been some loss of weight and strength.

Positive *physical findings* were as follows: Tonsils moderately hypertrophied, adherent, and infected. Definite tenderness in right lower quadrant in the region of her appendectomy scar. No tenderness over either kidney. Severe degree of endocervicitis. *Laboratory examination* showed 86 per cent haemoglobin, white count slightly elevated, 9,500, with 52 per cent polys and 44 per cent small mononuclears. Urine was negative except for a trace of albumen. Wassermann was negative and stomach contents normal.

Cystoscopic examination revealed a well defined stricture of the right ureter. Following dilatation of the stricture and treatment of endocervicitis this patient has been completely relieved of all her symptoms. She is

now free from pain and from digestive disturbance.

The history in this case indicates that the stricture dated back several years and probably had its origin at the time of one of the patient's acute infections. The clinical improvement following dilatation was very striking.

Mrs. J. M., seen March 18, 1924, *complaining* of cough and general malaise. *Family history* unimportant except that mother's sister has tuberculosis and patient has had frequent contacts with her. *Past history* is that patient has always been thin, has been free from any chronic cough, general health fairly good, except for frequent headaches of undetermined origin, chronic nasal discharge. *Present illness* began in January, 1924, fatigue, headache, general malaise, and enlargement of glands of the neck. Patient was also troubled at this time with pain in the right side radiating to the groin, at times extending down the leg. This was associated with marked frequency and burning. Acute symptoms have since then cleared up, but she continued to have a slight cough, appetite has been poor and she has lost some weight.

Physical examination showed a slender, poorly nourished woman who looked to be in rather poor general health. There was still some slight enlargement of the glands of the neck and the right axilla. Lungs clear throughout on palpation, percussion and auscultation. Pulse rate normal, blood pressure 105/60. No abdominal tenderness and no tenderness over either kidney. Slight endocervicitis, uterus in good position. Urine negative on two examinations. Haemoglobin 88 per cent; red count 4,400,000; white count 6,200, normal differential.

On account of history of frequency and burning, together with right sided pain, patient was referred for cystoscopic examination. *Cystoscopic report* showed stricture of right ureter about .3 c.m. from the ureteral opening and just above the pelvic brim. Dilatation of stricture was followed by marked improvement of patient's general condition. This improvement had been maintained when patient was last heard from.

Miss M. J. E., age 19, seen February, 1924. *Complaint*, pain in right side. *History* indicates that for the past three or four years patient has been having rather an indefinite pain

in the right kidney region radiating down to the right hip. No history of acute attacks. At the present time she is free from pain but comes in on account of her past history of discomfort in the right side. Patient is unable to give an accurate account of date of onset.

Positive findings on *physical examination* are definitely infected tonsils, slight elevation of blood pressure, 140/90, tenderness on deep palpation over the right kidney which is easily palpable and seems to be definitely enlarged. *X-ray* of the kidney was negative for calculi; urine showed a trace of albumin and many pus cells; blood examination showed 92 per cent haemoglobin, 4,500,000 red cells, 13,500 white cells with 82 per cent polys.

Cystoscopic examination of the kidney revealed a very definite stricture almost obstructing the right ureter, and a moderate hydronephrosis. Dilatation of stricture was followed by complete relief of symptoms which has persisted up to the present time, and by return of the kidney to normal size as shown by disappearance of the mass in the right side.

Mrs. W. E. A., age 56, seen June 15, 1925; *complaint*, pain in right lower quadrant of the abdomen. For many years this patient has been subject to recurrent attacks of pain in the right lower quadrant, followed by soreness that might last from several hours to several days. There was characteristic radiation of pain to the back in the region of the kidney with no other associated symptoms except that during the past year there has been a mild bladder disturbance characterized by frequency with very little dysuria.

Physical examination was essentially negative throughout except that there was definite tenderness in the right lower quadrant just below and external to McBurney's point. No tenderness over either kidney. *Laboratory examination* showed negative urine; haemoglobin 80 per cent, white blood count 9,000, normal differential. Wassermann negative. *X-ray* of the urinary tract was negative for calculi.

Cystoscopic examination showed a well defined stricture of the right ureter. Following dilatation of the stricture patient was completely relieved of a long standing pain and has remained well up to the present time.

These cases represent, in a general way, the clinical picture of ureteral stricture as it is presented to the general practitioner. Certain

symptoms stand out prominently, especially pain in the back radiating to the bladder, associated with history of bladder irritation at some time, together with localized tenderness. The association of these symptoms alone is sufficient to arouse suspicion of ureteral stricture. While the condition is not extremely frequent it occurs often enough to make it important that everyone should be familiar with the symptomatology. In consideration of lower right quadrant pain it is of especial significance and before a laparotomy is undertaken for the relief of undetermined trouble stricture of the ureter should be excluded.

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DISCUSSION OF PAPERS BY DRs. ANDREWS AND MARTIN.

DR. AUSTIN I. DODSON, *Richmond*:—The subject has been well covered, and I want, as my contribution, to show two or three slides of an operation that has been done on patients who did not respond to dilatation through the cystoscope. The two patients whom I want to report each had a very definite and constant stricture in one ureter. The strictures could be demonstrated both with the bulb catheter and the ureterogram. One of them had a very thorough and painstaking treatment by another urologist lasting twelve months or more before I saw her; consequently, I did not try to carry on the treatment further. I treated the other patient from the beginning. The stricture at first would admit only a No. 6 French catheter. After four dilatations a No. 10 French bulb could be passed with slight difficulty. Further dilatation through the cystoscope was unsuccessful, and there was no improvement in her symptoms.

In each of these cases, a small catheter was passed up the ureter and the ureter exposed by a muscle splitting incision just below the level of the anterior superior spine of the ilium. The ureter was opened just above the strictured area. The ureteral catheter was drawn out through the wound and attached to the tip of a No. 16 French rubber catheter. The catheter was then withdrawn, pulling the rubber catheter down through the strictured area until the tip of the catheter presented beyond the urethral meatus. The catheter was then gradually drawn down until the upper end presented just below the opening in the ureter. The ureter was then sutured with fine suture of tanned catgut and the wound closed, leaving a cigarette drain down to the ureter. The catheter was left in place in each case for twenty-four hours, after which it was withdrawn. In both cases there was a small amount of leakage through the wound for about a week, after which the incision closed without further trouble. Neither of these patients has had any pain since the operation. One was operated upon in March, 1923, and the other in May, 1925.

DR. LAWRENCE T. PRICE, *Richmond*:—During the last seven or eight years I do not know of any subject that has occupied the minds of urologists any more than the subject of stricture of the ureter. In the meetings of the American Urological Association, ten years ago, this matter was brought to our attention by Dr. Hunner, of Baltimore. Dr. Hunner being prominent, as he is, in the profession, naturally brought forth a great deal of interest in

this subject. In the next three or four years following the mention of this subject by Dr. Hunner, the urologists all over the country had cases. They were finding strictures in the ureters of everyone. Stricture of the ureter was the fashionable disease in certain localities; it was very popular to have stricture of the ureter. However, in working out this subject the pendulum has swung backward to a more substantial position, and things credited to stricture of the ureter are now found to be due to other causes. Stricture of the ureter, however, does exist in many cases.

Stricture of the ureter is not unlike a stricture of any other tube. Stricture of the urethra, with which you are all familiar, is a very definite condition; so is stricture of the esophagus and other tubes. If you think for a minute of the many conditions that might produce a stricture, such as traumatism, inflammation, etc., you can see that it is a condition which is likely to occur. The strictures usually are in the lower portion of the ureter. The symptoms are those of obstruction, the stricture causing damming back of the urine in the upper part of the ureter and in the pelvis of the kidney. The principal symptom, of course, is pain. In the right abdomen, of course, this condition has to be differentiated from such conditions as appendicitis, gall-bladder disease, etc., and in the female from right pelvic disease. But it is far easier to exclude disease of the ureter than to exclude other diseased conditions, and by the introduction of a catheter, pyelograms, etc., your problem can be very easily solved.

But I want to utter a warning word. Don't think that all abdominal pain, right or left, can be caused by stricture of the ureter. Stricture of the ureter does exist, and when it does exist it is a condition that can not be relieved except by the proper cystoscopic intervention and dilatation that will be necessary for that particular case.

DR. BURNLEY LANKFORD, *Norfolk*:—I wish to discuss Dr. Andrews' paper with reference to pregnancy. I think we should all be on the lookout for ureteral pathology during pregnancy, as there are a certain number of cases that will first attract attention during pregnancy. Of course, frequency of urination is a common occurrence in pregnancy, but when it is accompanied by pain on urination, and by backache, which may be unilateral, and may be on the wrong side, we should suspect ureteral stricture. Stricture is often in the part of the ureter that dips down into the pelvis. When a woman in the later months of pregnancy begins to have painful urination, her attendant should make a very careful, gentle vaginal examination, using plenty of lubrication, and very often the pelvic ureter may be palpated and will be found to be tender along its course. Appropriate treatment should be instituted.

DR. R. D. BATES, *Newtown*:—There has been a case running in my head that rather bears on three of the last papers. A girl thirteen years old was sent to me with a history of vomiting, and general pain in the abdomen, more striking in the right side. I was very much puzzled as to whether it was appendicitis or renal colic. I gave her the sedative treatment, which is applicable to both, and saw her two days in succession. The last time she said she was perfectly relieved, and the case passed out of my mind. About a week later I got a hurry call, and found an abscess in the abdomen. Upon taking her to the hospital and operating, we found an extensive postcecal abscess. The appendix could not be found. I have been wondering whether I should

have taken her to the hospital at first. Some of these men have justified me, and some have condemned me.

I believe in children that any abdominal pain of obscure nature should be watched very closely and a blood count made, if possible, unless it clears up entirely.

DR. CHARLES R. ROBINS, *Richmond*:—There are a great many things that interfere with our diagnosis and make it difficult to realize just what is at fault. The point I want to make is this—the fact that you find a ureteral stricture does not necessarily prove that there is no other pathology that is causing trouble, and I sometimes wonder, in the numerous cases referred to where previous operation has been done without relief, and the patient is relieved after dilatation of the stricture, just what the previous pathology was and what bearing it had. I feel sure that pathology must have been found in a reasonable number of cases. I think there must be some relation between the other pathology and the stricture. I think it is generally conceded that stricture is an inflammatory condition, resulting from focal infection at some other point. Inflammation is set up in the ureter, resulting in stricture. I think we should not confine our attention to the ureter only, but approach the case as a whole.

I have had the pleasure in recent years of working with a doctor who has done considerable work along this line, so when I have the least reason to suspect that the patient may have stricture of the ureter I turn the case over to him. If he finds that the patient has stricture, he goes ahead and treats it; if not, we look for something else. I often wonder if these patients went primarily to the urologist, wouldn't he make as many mistakes as we do? I am one of those people who is perfectly willing to admit that he can not diagnose every case. Many of these cases I think are very difficult for even a urologist to diagnose. I have in mind one case, a little girl brought in with a diagnosis of appendicitis. It did not strike me, from the history, that it was a definite case of appendicitis, so I called in other people, had X-ray examinations made, etc. The X-ray was positive for appendicitis and negative for stone. Nothing else having been developed, I operated for appendicitis and removed a chronic appendix. (I know it was chronic, because the pathologist said so.) A few days after operation she passed some bloody urine. The passage of a clot through the ureter produced hydronephrosis, and exactly the same symptom for which she was operated upon. She was so young that we had not suspected any stricture of ureter. In this case the X-ray and operation confirmed a diagnosis of appendicitis. There were no symptoms or urinary findings that suggested ureteral or other urinary pathology and yet she had an attack which seemed to prove conclusively that her main symptoms had been due to a urinary condition. So even with careful and complete efforts at diagnosis, we may apparently fall into error.

DR. LINWOOD D. KEYSER, *Roanoke*:—I have encountered this condition about eleven times during the last two years in this way. Patients come complaining of pain, which seems to be referable to the urinary tract, but for which no definite pathology commensurate in degree with the pain can be found. Following cystoscopy, there is exacerbation of the pain. During the cystoscopy injection of five to ten per cent solutions of novocain into the ureter has produced local anesthesia, with temporary relief from the pain from which the patients suffer. The

injection of the renal pelvis to the point of distention produces pain of the type and site of that which brings them to the urologist. Likewise, the pain following cystoscopy is of the same order. Seven of eleven patients in my series had appendectomies, while others had various operations on the tubes, ovaries, gall-bladder, tonsils, etc., without relief. One patient who showed no urinary tract pathology had the right kidney removed. This relieved the pain on that side, but the pathologist reported a practically normal kidney. Recurrence of the colic on the left side followed in this case in thirteen months. Ureteral dilatation has relieved these colics to some extent.

Recently the French and German writers have been reporting good results from the stripping of the renal capsule or of the nerve fibres from the renal pelvis, as they come in along the renal arteries. They are working at the other end, for pain in the kidney or ureteral colic without obvious pathologic cause.

The relief of ureteral stricture, in my own experience, is far more transient than the relief of organic stricture by dilatation elsewhere. Ureteral stricture is possibly a misnomer, in many instances, and we deal with a ureterospasm of the type of pylorospasm or cardiospasm. After dilatation of the ureteral stricture the patients almost all seem to get some relief, but usually they come back after a number of months to be treated again. Certain of the recurrences seem to taper off; become less severe and less frequent. In other cases the good effect of dilatation seems to wear out.

The hang of the bulb does not differentiate between spasm and organic stricture. The condition is not necessarily associated with a demonstrable hydronephrosis. We know that these kidneys drain well most of the time. This, with the relaxation from novocain and the subsequent relief from pain after its injection, point more to a spastic condition being at fault in the majority of cases.

These are some personal observations drawn from a detailed study of eleven cases encountered in the past two years.

DR. C. J. ANDREWS, *Norfolk*, closing the discussion: I am very much pleased indeed that these gentlemen have discussed this subject. I do not know of anything which any of them said with which we disagree at all. I think the warnings which have been brought out are entirely correct, and I have been very careful. I have recognized the fact and have told Dr. Martin that one thing we have to look out for is becoming too enthusiastic about this thing and looking at the case from only one standpoint. These patients need the same study and care as any other patients, and the only purpose of this paper is to bring this condition to the attention of the members of this Society, so that you will consider this condition. I am frank to say that for several years I read these stories about stricture and took no stock in them at all. It was only the fact that we had these patients who were getting relief in no other way that caused us to begin to try this method, in order to try to give them some help.

As to the sex, I just mention this in order that we may not get confused. I was in hopes that Dr. Price would say something about this condition in men. It just happened that my patients were women. Apparently the evidence is that it is more common in women, but probably it exists in men.

As to Dr. Price's statement that it is liable to become fashionable, of course we heard that same

thing about appendicitis and other diseases. I think it is not likely to become very fashionable. What we should do is to try to get at the truth.

One of the doctors said something about looking at one part alone. I think that is a danger. So far as I am concerned, I think it would be extremely desirable if the men who do this work, particularly on women, should do the pelvic surgery and the whole thing, so that they would not look at it from only one standpoint. I have always felt that is the disadvantage of a very close limitation of work. If a man confines his work to the urinary tract and does not look at anything else, he is likely to overlook other conditions.

SPINAL PUNCTURE AS AN AID IN NEURO-SURGICAL DIAGNOSIS.*

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Spinal puncture is one of the most important procedures in neurological diagnosis. In the majority of undifferentiated cases it is no more dangerous than a minimal risk of infection resulting from the insertion of a needle into the spinal subarachnoid space under aseptic conditions. On the other hand, there is no more serious operation in neuro-surgery than an ill-advised spinal puncture on a patient with alarming intracranial pressure due to a certain lesion. Death in such a case may occur several hours following the puncture. It is not the purpose of this paper to discuss fatalities, but to avoid them, and to show that frequently of greater moment than the fluid examination will be the determination of the pressure and its proper interpretation with reference to intracranial or spinal compression.

All spinal punctures should be done under strict aseptic technique. Injections of novocain should be made previous to the use of the larger spinal puncture needle. This not only lessens the pain of the puncture, but enables relaxation of the patient which is necessary for accurate pressure readings.

Before a spinal puncture is undertaken, a careful neurological and ophthalmological examination should be made. The presence of a choked disc, usually signifying a high degree of intracranial pressure, should be a warning against the withdrawal of any spinal fluid below the level of the medullary centers. The intracranial pressure tends to crowd neighboring structures through the largest cranial exits, and any release of pressure below the foramen magnum will increase the herniation of the medulla and cerebellum which may result in

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the death of the patient. Spinal puncture may be contra-indicated when there is a localized infection in direct contact with the cerebro-spinal fluid spaces. Any withdrawal of spinal fluid in such a case would tend to spread the inflammatory process. In the presence of an acute systemic infection with signs of intracranial pressure or involvement one should hesitate to do a spinal puncture, because the reduction of the cerebro-spinal fluid pressure might cause an influx of bacteria from the blood stream into the spinal fluid spaces resulting in an induced meningitis.

Spinal puncture may be indicated in any neurological condition, not mentioned as a contra-indication, where it is necessary to examine or withdraw fluid for diagnostic or therapeutic purposes. For diagnosis, the fluid examination should not only include its physical, chemical, and microscopic findings, but the pressure reading made at the time of the spinal puncture is of great importance. In the latter investigation the field is not limited to recording the pressure registered by the manometer, but the variations of the pressure caused by purposely induced physiological acts for raising the intracranial or spinal pressure are of considerable importance in determining compression in spinal cord lesions.

The examination of the cerebro-spinal fluid may throw considerable light on certain lesions of the central nervous system. The presence of an increased globulin content or a yellow fluid is definite evidence of a pathological process. This yellowish or xanthochromic fluid has a high protein content and may coagulate on standing. It may be found at spinal puncture when there is a spinal cord tumor or other lesion completely obliterating the subarachnoid space above the puncture at a certain level. The obstruction causes a stagnation of the fluid in the lower segment of the spinal canal and the fluid accumulates an excess of globulin and takes on a yellow color. Sometimes an intracranial lesion, such as a tumor, may cause a yellowish discoloration of the cerebro-spinal fluid, especially when the tumor is in contact with the ventricular or subarachnoid fluid spaces. There may be simply an increase in globulin without any change in color. The coloring material in the fluid may be the result of disintegrating red blood cells, and on that account the fluid is frequently spoken of as being erythrochromic. This fluid usually

does not coagulate on standing, but a pigmented sediment may form at the bottom of the fluid.

A quantitative estimation of the sugar content of the spinal fluid may be of help in differentiating certain neurological conditions. In meningitis, especially tuberculous meningitis where the cell count is not excessively high, the spinal fluid sugar is usually low, while in other inflammatory processes, as encephalitis, the sugar content is higher than normal. The total and differential cell count, bacteriological examinations, Wassermann, colloidal gold, and mastic reactions are also of importance and should be mentioned, but space will not permit me to go further into their discussion.

The spinal fluid pressure should be measured at every spinal puncture. The best instrument for this purpose is the Ayer water manometer which consists of a glass tube of 1 mm. bore with proper connection to the spinal puncture needle. The cerebro-spinal fluid is allowed to rise in the glass tube which is marked off to represent mercury pressure readings. This instrument is simpler and the pressure reading is more elastic and accurate than the mercury apparatus. We regard the normal spinal fluid pressure with the patient in the horizontal position as varying from 0 to 12 mm. mercury. Normally the fluid level representing the pressure in the glass manometer will fluctuate synchronously with the heart beat and respiration. The spinal fluid pressure may be made to rise in the normal case by increasing the venous pressure in the cranial cavity or spinal canal by digital pressure over both jugular veins in the neck or by allowing the patient to cough or strain as at stool.

Just as the blood pressure cannot be accurately measured clinically without the sphygmomanometer, so the spinal fluid pressure cannot be measured satisfactorily without the spinal manometer. The spinal fluid pressure determination may be of the greatest aid in the diagnosis and treatment of certain intracranial conditions, as trauma, where a decompressive operation may be indicated or avoided by the use of this test. In other intracranial conditions with the signs of increased intracranial tension, an accurate determination of the spinal fluid pressure may be needed.

The Queckenstedt test at spinal puncture offers a new field in diagnosis of space con-

stricting lesions within the spinal canal. This test is used during the usual spinal puncture at the fourth lumbar interspace with the needle connected to an Ayer water manometer. After waiting a minute for the fluid pressure to seek its level, digital pressure for ten seconds is made over both jugular veins in the neck by an assistant. Careful note is made of the promptness in the rise of pressure in the manometer and the highest pressure at the end of ten seconds is recorded. Accordingly, the drop in the spinal fluid pressure is noted after jugular compression is released, and the time taken for the pressure to reach its former level is recorded. Normally, if there is no block or obstruction in the spinal subarachnoid space between the needle in the lumbar region and the cranial cavity, the rise in the fluid pressure on double jugular compression will be prompt and average 12 to 15 mm. mercury, while the fall in pressure after release of jugular pressure will be almost as prompt but usually slightly delayed. It will be further noted that the fluctuations and excursions of the spinal fluid level in the manometer synchronous with the heart beats and respirations will be quite marked. It may readily be seen that should there be a space restricting lesion in the spinal canal, as a tumor or a fracture-dislocation of the vertebra, the spinal subarachnoid space may be partially or completely obliterated, and the Queckenstedt test will give the signs of a partial or complete block.¹ In the case of a complete block there will be no rise in the spinal fluid pressure on double jugular compression, and there will be no fluctuations synchronous with the heart beat. On coughing or abdominal straining there will be a rise in the spinal fluid pressure from 5 to 10 mm. mercury even with a complete block. This is probably due to the fact that coughing and straining, which raise the intra-abdominal pressure, transmit the pressure through the venous plexuses to those in the spinal canal below the spinal obstruction. This rise in pressure below the block is recorded on the manometer. Double jugular compression causes an engorgement of the sinuses and veins within the cranial cavity, and the resulting increased intracranial pressure cannot be transmitted through the needle in the lumbar region should there be an obstruction of the fluid pathways anywhere between these two

points. This test is of the greatest aid in the diagnosis of spinal cord tumor or spinal fracture with cord injury. When the test is positive, it means that there is pressure on the cord, and usually operation is necessary to relieve that pressure.

Unfortunately the test does not tell where the block is located. In the absence of sufficient clinical signs to localize a lesion, the level may be determined by injection of air into the spinal canal in the lumbar region or lipiodol into the cisterna magna. In either case roentgenograms taken with the patient in the upright position will locate the obstruction as being where the air or iodized oil stopped. These latter tests are not necessary except to localize the lesion when the clinical findings are insufficient. The Queckenstedt test is sufficient to diagnose a spinal block.

Recently the Queckenstedt test has been used by Coleman, Dowman, Ayer and others in the diagnosis of lateral sinus thrombosis following mastoiditis. Instead of compressing both jugular veins at spinal puncture, just one is compressed at a time, and the side compressed showing no rise in the spinal fluid pressure indicates an obstructed lateral sinus, especially when compression of the opposite jugular vein causes a rise in the spinal fluid pressure equivalent to that of double jugular compression.

Spinal puncture may be combined with puncture of the ventricle or cisterna magna. The double puncture may be done for the purpose of irrigation in the case of meningitis, to administer drugs or serums nearest to the diseased area, to obtain fluid for examination at different levels, and to confirm or disprove a block between two points by the difference in the pressure readings in the two needles or the failure of a dye to pass from one needle to the other. Frequently the latter is of great aid in differentiating certain types of hydrocephalus. Puncture of the cisterna magna or ventricle is potentially more dangerous than lumbar puncture and should not be done by one inexperienced in neurological surgery.

To summarize, the following brief statements may be made:

1. Spinal puncture is usually a harmless procedure, but may be highly dangerous when the intracranial pressure is sufficiently great to produce choked disc.

2. The spinal fluid pressure at every punc-

ture should be measured preferably with a glass water manometer.

3. The presence of a positive Queckenstedt test is evidence of a block and usually means pressure on the spinal cord. It is of great aid in the diagnosis of spinal cord tumor and fracture-dislocation of the vertebra with cord compression.

4. Spinal puncture may be combined with punctures of the cerebro-spinal system at higher levels for help in diagnosis and therapy.

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DISCUSSION.

DR. C. C. COLEMAN, *Richmond*: I want to emphasize one feature of Dr. Lyerly's paper that he did not have time to enlarge upon.

We know that there has been the greatest difference of opinion as to how acute injuries of the spinal cord should be treated. In a group of a dozen neurological surgeons about one-half will advocate early operation, whereas the remainder will believe that operation is rarely indicated. We have been troubled for a number of years about what should be done with fractures of the spine associated with severe cord injury. They are very frequent industrial accidents. When Queckenstedt described his method of determining obstruction of the spinal subarachnoid space by spinal puncture and jugular compression, we began to make this test routinely whenever a spinal puncture was done. We did not begin, however, to apply it in the decision as to operative treatment until January, 1924.

It is certainly true that operation is not indicated in fracture of the spine unless there is pressure upon the cord. Pressure upon the cord cannot be determined by early clinical study. We have believed that when there is a spinal block, as determined by the Queckenstedt test, an unequivocal indication for operation exists, but often, even in the presence of pressure upon the cord, the decision for operation must be left to the judgment of the surgeon. If the patient is in a good general condition and the Queckenstedt test is positive, operation should be done at once. On the other hand, no matter how severe the spinal cord lesion may be or how extensive the paralysis, if there is no block, there is no indication for operation in these cases. The test is a simple one, but requires considerable refinement of technic in making it properly. Unless the test is properly made, erroneous interpretations may result and no help will be obtained from the test in the study of the case.

DR. R. FINLEY GAYLE, *Richmond*: There are several points in Dr. Lyerly's paper which I think are of great importance and should be emphasized. Aside from the spinal block, which Dr. Coleman discussed, the most important thing is that a careful preliminary neurological examination, including an examination of the optic disc, should be insisted upon for the reason that a spinal puncture should not be attempted in the face of any evidence of choked disc. Spinal fluid pressure should be estimated by the spinal manometer, as much informa-

tion may be gained by this procedure, and since estimation of spinal fluid pressure by the drop method, which was for a long time universally used, is insufficient and really gives very little information of value. The manometer is a simple instrument, easily used, and should be employed in all cases of spinal puncture.

The question of headache following a spinal puncture is a source of much worry to those of us who do many spinal punctures. I should very much appreciate Dr. Lyerly's giving us any information he might have relative to its cause and treatment.

XEROPHTHALMIA IN INFANTS.*

By ST. GEO. T. GRINNAN, M. D., *Richmond, Va.*

Blindness in infants has until recent years been regarded as largely due to gonorrhoea or injury and infection.

Recent studies have shown that many cases of impaired vision and blindness are nutritional deficiencies and that season is an important factor. Dr. Bloch¹, of Copenhagen, has done most excellent work in observing and diagnosing and reporting hundreds of cases of nutritional eye troubles resulting in blindness in Denmark, due to lack of butter fat. Dr. Bloch's work has been reported continuously for the past ten years.

McCollum² and Simmonds have carried out extensive animal experiments which prove xerophthalmia to be specifically due to lack of fat Soluble A.

As pointed out by McCollum³ and Stepp "every animal and plant cell contains certain substances having the physical properties of fat" in addition to protein, carbohydrates, water, etc. They also note⁴ that small deviations from the optimal composition of the food may, in certain cases, produce profound changes in the manner of organization of the finer structure of living tissue.

Experimenters agree that the xerophthalmia (thickening of the conjunctiva, watering, photophobia, impaired vision), keratomalacia (haziness and shriveling of the cornea), xerosis (dryness of the ocular conjunctiva) are due to the lack of fat soluble A vitamin.

Lipins have been extensively studied by Stepp and McCollum as embracing the fats necessary for proper growth of animal tissue.

Among the lipins cholesterol and the sterols⁵ are especially important as antiophthalmic and antirachitic constituents. "No difference was found in the sterols of egg yolk fat, cod-liver

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From the Department of Pediatrics, Medical College of Virginia, Richmond, Va.

oil, butter fat and hazel nut oil that could be correlated with biological value."

Mori reported eye impairment due to deficient diet in 1904. He reported fourteen hundred cases in Japan within two years, 1905-1907.⁶ His cases showed xerophthalmia, keratomalacia and xerosis. Chicken livers and eel fat were regarded as an effective remedy. Mori's cases were treated with cod-liver oil.

In Labrador, Dr. Grenfell reported an interesting condition. In the late winter, "spring staggers," "spring catarrh" and night blindness, (nyctalopia) was a common occurrence. The diet of these people consisted of degerminated or bolted wheat flour, canned meats, salt fish, molasses and tea. This diet was deficient in fat soluble A. Cod livers were found to be an efficient cure.

During the Lenten Feasts in Russia nyctalopia (night blindness) is endemic. Reports from India and from Brazil showed that slaves on deficient diets commonly had night blindness.

In Calcutta the eyes were poulticed with an exudate of fresh goat's liver and the liver was included in the food.

The value of cod-liver oil as a cure for night blindness has been noted from early times.

The eye lesion does not occur early in the disease. These cases are not always emaciated. They are depressed and listless. They fail to gain weight or lose weight. Rickets may not be present.

The first symptom of xerophthalmia is night blindness and xerosis or drying of the ocular conjunctiva. The conjunctiva is thickened and the eye appears an acute infected ophthalmia. There is a constant watering of the eye and severe photophobia. Simple infection soon is noted. When the dryness or infection extends over the cornea, the cornea shrivels and pieces become necrosed. So great is the photophobia that the child will remain for weeks or months with the head buried in a pillow and cry when moved. The scars on the cornea are hazy and unless treatment is begun promptly will result in permanent blindness. Some of the scarring or haziness when treatment is begun will disappear but some haziness, if the xerosis has gone that far, will remain.

For severe cases Bloch⁷ gave cod-liver oil by mouth and he gave 0.5 c.c. of cod-liver oil hypodermically daily and increased it to 1 c.c.

This was done for the first four to eight days. The cod-liver oil was sealed in glass and put in boiling water to sterilize. Using this treatment he restored sight in five infants. The xerosis swelling and secretion of the conjunctiva disappeared sooner than in other similar patients not given cod-liver oil hypodermically.

In Denmark the widespread xerophthalmia, especially during the World War, was due to the butter exports. The poor could only afford separated milk.

Xerophthalmia ceased when the German blockade kept butter in Denmark and butter was rationed.

The disease is most prevalent in late winter and spring. March has the highest per cent of cases. Grass milk is better than winter milk.

No cases were noted in breast fed infants.

Case 1. E. B. E., aged eleven months, white, male, weight thirteen pounds, undernourished. Admitted January, 1924, for chronic conjunctivitis and malnutrition. Yellow scaly eruption behind the ear and both cheeks scaly. Right eye had a mucoid discharge. Had been treated some time with a boric acid wash. Nose, mouth, tonsils, pharynx, neck, thorax, heart, lungs and abdomen negative. Wassermann negative. Dry skin. Reddening of eyelids, watery discharge, little pus, culture showed some streptococci.

Hemoglobin	70%
Leucocytes	14,000
Polymorphonuclears	26%
Small lymphocytes	72%

This child's eyes were treated with the usual remedies for conjunctivitis. Photophobia was severe.

He remained with his face down for three months. The condition did not improve. It was decided that this was a case of xerophthalmia and he was given cod-liver oil, one drachm, three times daily. He was also given egg yellow, milk and cereal. The effect was much more rapid than could be imagined. In three weeks' time, the photophobia had disappeared and the conjunctivitis almost entirely disappeared. The eye sight has been entirely restored and has made a complete recovery. Discharged, May 23, 1924, weight nineteen pounds, and cured except for the blockage of one lachrymal duct due to infection.

Case 2. J. H., age two years, two months,

female. Admitted November 1, 1923, to orthopedic department, for tubercular hip, conjunctivitis and bronchitis. On admission the conjunctivitis was slight.

December 17th. Conjunctivitis was severe in left eye. Eyelids swollen.

December 25th. Eyes worse.

Bilateral conjunctivitis, lid red and swollen.

Examination of blood showed 4,000,000 red blood corpuscles.

Hemoglobin80%

Leucocytes12,000

Polymorphonuclears58%

WassermannNegative

Examination of eye discharge showed many disintegrating polymorphonuclears, no organisms found.

The eye condition continued very distressing.

This condition existed for more than one year and treatment for chronic conjunctivitis showed no improvement. It was decided that this was a case of xerophthalmia. There was marked xerosis and scarring of the cornea. The left eye was blind. Cod-liver oil and egg yellow was begun. This child who had been lying with her head down in the pillow all the winter got up in two weeks and in one month's time the photophobia was gone. The eyes began to assume a normal appearance except for the scarring of the cornea. Gradually some of the scarring of the cornea disappeared but that which had existed longest did not leave. The sight of one eye was partially saved, one apparently lost.

In the treatment of these cases of xerophthalmia no treatment other than diet was given. All eye applications to the eye were stopped when antiophthalmic diet was begun.

Pork fat has not the antirachitic fat Soluble A that is found in butter fat, and the farmer who sells his butter and feeds his child on skimmed milk is taking a great risk.

An attempt has been made to isolate the specific antirachitic element in cod-liver oil by many experimenters.

Steinback⁸ isolated cholesterol from cod-liver oil and found it antirachitically inactive, but exposure to ultra-violet ray made it active.

Light and radiation is a factor in this disease and infants who suffer from a long illness and are kept in a hospital should be supplied

with sufficient Fat Soluble A Vitamin, especially in the dark months.

Pliny's remark that "Sol est remediorum maximum" is being realized more today than ever.

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DISCUSSION.

DR. W. B. McILWAINE, *Petersburg*: Dr. Grinnan's paper ought to be of interest not only to men in pediatrics, but to all practitioners of medicine. It plainly shows that the one thing to give to a child when it comes to you, if you are in doubt, is cod-liver oil, instead of quinin or bromides or peptones. Xerophthalmia very often is not diagnosed, but is cured by a competent doctor by giving the proper diet and cod-liver oil. If a doctor pays the proper attention to nutrition, he will cure these cases even if they are not diagnosed.

I want to ask two questions. The first is, do these cases occur very often in colored children? The other is, does Dr. Grinnan think the hypodermic administration is necessary in cases of this kind?

DR. FLETCHER D. WOODWARD, *University*:—I have seen a few of these cases. The experience that we have had in this type of eye condition has usually been in the mountain children of Virginia up around Charlottesville. We see conditions that we class as due to lack of vitamin A which, perhaps, if not treated with cod-liver oil, would progress to xerophthalmia. I recall having seen only one marked case of xerophthalmia. The child was entirely blind in both eyes. Examination gave the impression that cornea and conjunctiva had been entirely replaced with epithelium, and that if you could get through that hazy covering you would get a clear cornea underlying. Of course, that cannot be done. This was a very advanced case that came from the mountains of Virginia.

DR. ST. GEORGE T. GRINNAN, *Richmond*, closing the discussion: With regard to this condition in colored children, we have one colored child that came here from North Carolina that is totally blind.

As to the hypodermic use of cod-liver oil, I have not tried it. Bloch says he uses it only in extreme emergency. He said by its use he thought he had saved the sight of five children. He had seventy-nine cases of his own.

OVA IN GALL TRACT DRAINAGE.*

By ROBT. SHEFFEY PRESTON, M. D., Richmond, Va.
Associate in Medicine, Medical College of Virginia.

The only reference found in the literature of ova having been obtained by duodenal lavage is "that hookworm ova could be aspirated through the duodenal tube, although this maneuver was not successful often enough to serve as a practical aid in diagnosis."¹ No record has been found of any ova ever having been discovered in the drainage of the biliary organs through the duodenal tube. The closest analogy to our case is one of Smithies,² in which cercomonads were in the gall-bladder fraction of bile and only in that fraction.

Unsuccessful attempts have been made by us to find ova in the duodenal drainage of cases of known infestation with ascaris and uncinari. The occurrence of these in the human is more frequent than giardia, yet these motile parasites show a predilection to attack the duodenum² and we have found them not uncommonly in the drainage from this region. It would be surmised that the duodenum is not the favorite habitat of intestinal parasites, nor such a frequent one as has been thought.

The common round or eel worm, ascaris lumbricoides, has been found in many places in the human body.³ Like the spirochaeta pallida it may cause a variety of symptoms simulating many morbid conditions. Its existence oftentimes is made known by its wanderings, which tendency endangers the host. More people are infested by it than by any other parasite. It causes liver abscesses next in frequency to the amoeba histolytica. Its ovum is very resistive on account of the impermeability of its chitinous wall⁴, though it is said that its albuminous membrane can not be seen after having been left in urine or bile.

The ova obtained from the bile of the case herewith reported are shown under the microscope. There has been observed little variation in their appearance. They agree with the pictures and measurements given by Wellman,⁵ who says that they are the constant product of the female ascaris lumbricoides that fails to get her eggs fertilized. Vierordt⁶ states that the female can penetrate the liver and deposit eggs, which exceptionally undergo segmentation.

Ascaris ova differ widely. One of these atypical ones is the unfertilized ovum. It is by no

means rare⁷, and is usually seen in the feces of persons infested with only a female parasite. It was first reported in 1902.⁸ Logan⁹ found it in seven cases in which a single female worm was evacuated from each individual, after which the ova in the feces ceased. Dr. Chas. W. Stiles found the same peculiar eggs in a patient and said that he agreed with the discoverers⁸, who concluded that they are not fertilized. It is said that this ovum when taken from the uterus is finely granular, whereas in the feces it is coarsely globular. The albuminous coating is less in the unfertilized than in the typical egg and disappears entirely. This is due to lack of nourishment.¹⁰ This egg is longer and narrower than the fertilized egg and is generally elliptical.

We can find no record of how long a female ascarid can continue to lay eggs nor how long she can live in the human. Experimentally it is known that eggs are laid as many as eight times. The probable duration of life of the worm is three to five years.¹¹

The patient has been under observation since 1915. Her age is fifty-six and her weight is one hundred and eighty. Her stature and excessive coloring attract attention and call forth skeptical comment as to her health. She has had much digestive disturbance, attributed to irregular habits. The principal complaints have been nausea, giddiness, constipation, cramps and paresthesias in lower extremities and attacks of pain in the hepatic and right renal regions.

As a child she had scarlet fever and frequent attacks of tonsillitis.

In 1912 trachelorrhaphy and appendectomy were performed on her and in 1914 a vaginal hysterectomy. Much dental work has been done and the tonsils have been removed. Despite two operations, hemorrhoids have given trouble for twenty years. Unsatisfactory treatment has been received for an ureteral stricture, pyonephrosis and sinusitis.

In 1921 an attack of neuritis, principally in the right shoulder, necessitated ten days' hospital treatment. One week afterwards, a bloody diarrhoea occurred and continued for six days. She attributed this to eating raw figs while in Italy.

Noticeable on examinations have been the good nourishment, puffiness and dark discoloration around the eyes, flushing of the face, marked dermatographia, tenderness in arms

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and legs and particularly in gall-bladder and right renal regions. The pharynx has usually been injected, probably due to a nasal septum deflection. The reflexes and retina seem normal. There has been no glandular enlargement. Cardiac response to stimuli has been very active. The systolic blood pressure has been from 145 to 170 and the diastolic 90 to 100. Signs of moisture have existed at the base of the right lung. General tenderness has persisted in the abdomen, usually with right rectus resistance increased.

The X-ray in 1921 showed the gall-bladder distended and its walls thickened; the stomach, duodenum and kidneys normal; adhesions in right iliac fossa. Gall-bladder operation was then advised but was refused. It was delayed, probably by the benefit derived from drainage, till April, 1925, when cholecystectomy was done.

The first transduodenal drainage was in October, 1921. The aspirated bile showed signs of inflammation. Four times at long intervals the drainage was repeated with pleasing symptomatic effects. The patient gave credit to them for clearing her complexion and requested their repetition, although the effects were sometimes severe, such as nausea, cramps in the right hypochondrium, diarrhoea, and once unconsciousness.

A vaccine made from this bile produced a pronounced reaction. Biliary drainage was done in March, 1923, and apparently relieved the suffering and exquisite tenderness in the gall-bladder region which had confined the patient to her bed for a week.

Three taps were done in August, 1924. The principal complaints then were fatigue, neuritis, bad complexion, edema of the eyelids, aching in the right back and perverted appetite. The bile from the first tap was small in amount, of light color and contained many pus cells. Five days later 300 c.c. of thick, black bile drained off. In this many ova were found. On previous taps the bile had never been so black, nor so much, nor of such consistency. Never had ova been found prior to this in the bile and never have they been seen in the contents of the fasting stomach and duodenum. One week later the aspirated bile was lighter in color than "B" bile usually appears. No ova could be found in it. On a subsequent tap the flow was straw colored and then clear. In these specimens, again, no ova could be found.

A second instillation of magnesium sulphate promoted a flow of light yellow, then black and then yellow bile. Ova were found in the black bile.

On December 15, and 20, 1924, and January 8, 1925, the bile was again drained. Ova were found in all the specimens of dark bile and in some of those after the gall-bladder fraction had ceased, but in none of those obtained before it began. The microscopic signs of inflammation in this series of tappings were less than had been found in August. During this series the eosinophils had increased to 50 per cent. This was thought to indicate a reaction to the treatment and a sensitization to the poison. A skin reaction was obtained with powdered ascaris worms.¹²

One ovum was found in the feces at this time, after the administration of anthelmintics. It was identical in appearance with those in the bile. On numerous previous fecal examinations we had failed to find any ova. Subsequently they could be found.

The bile obtained at operation directly from the gall-bladder contained the ova. There was less evidence of inflammation in it than had appeared in the "B" bile. Staphylococci aureus were cultured from it. They were also grown from the "B" bile in addition to colon bacilli. The gall-bladder contained approximately five ounces of dark bile and two small calculi. Unfortunately it ruptured on removal and a separate bile specimen was not obtained from the common or hepatic duct nor could the liver be carefully explored.

Unsuccessful attempts to incubate the ova were made by Dr. Chas. W. Stiles. He concluded that they are the unfertilized eggs of ascaris lumbricoides and suggested that a female worm might be in the biliary tract. At first the ova were found only in the gall-bladder fraction of bile. Naturally we assumed then that the gall-bladder was the habitat. Later when the "C" bile also contained ova, we concluded that the ova were passing through the liver. They probably had accumulated in the gall-bladder with the back flow of bile. They were more plentiful, five in a low power field, in the first aspiration of "B" bile than in subsequent ones. At first the ova were thought to be those of hepatica fascioli. They were too small, would not hatch, and no operculum could be found to enable us to identify them as such.

LABORATORY FINDINGS: Summary—leucocytes 5,000 to 10,000; polymorphonuclears 33 to 81 per cent; eosinophils 24 per cent in October, 1921, and as high as 50 per cent; hemoglobin 85 to 100 per cent; blood sugar .06 to .08; Wassermann negative; Kottmann accelerated: coagulation time $4\frac{1}{2}$ minutes.

Urinalyses showed constant pyuria and occasionally casts and red blood cells. A culture produced colon bacilli. Albumen was present but no sugar. Indican was increased. The power of concentration and diuresis was good and 50 per cent 'pthalein was excreted in two hours.

The feces showed occult blood once and undigested particles frequently. On the last four examinations ova have been demonstrated. They were found in the feces but not in the bile obtained October 10, 1925.

A muscle tissue biopsy was normal.

Two Ewald test meals proved an hypoacidity. The fasting stomach contained no bile and no free hydrochloric acid but an increase of mucus, epithelium, leucocytes and bacteria. Occult blood was present.

Duodenal drainage contained clumps of leucocytes.

In the bile there were mucous flakes, crystals, leucocytes, epithelium, bacteria and ova.

Treatment has been mainly symptomatic and eliminative. Urinary antiseptics and hydrochloric acid have been employed frequently. Various anthelmintics, caprokol, instillations of mercurochrome into the duodenum and cholecystectomy have not entirely eliminated the ova.

COMMENT.—This unusual case is perplexing diagnostically and therapeutically. It will be followed with interest. Presumably there is a female ascaris in the biliary tract, most likely inside of the liver. This parasite has existed there five or more years, judging from the long continued eosinophilia. It has been depositing ova for more than a year. Its disclosure is credited to duodenal intubation. Attacks against it are made with skepticism. Persistent lavage treatment and proper vaccines will benefit the associated infections of the hepatogastro-intestinal and kidney tract.

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DISCUSSION

DR. W. A. BRUMFIELD, *Blacksburg*:—This is certainly a most interesting paper to me, and I think the most interesting part about it is that cases of such character are so rare, or possibly not so rare, but so rarely discovered. In one of our counties the examination of 512 school children showed that a little over seventy-nine per cent of them had this ascaris. In another county, examination of the children in the schools showed that seventy-eight per cent had it.

Infection of adults is a very common thing. It is not necessary for anyone to go to Italy to be infected with ascaris, nor is it necessary to go out to the country districts.

As the speaker has said, these ova are extremely resistant.

It has been estimated that a female ascaris will lay sometimes 80,000 eggs a day. They may be deposited on lettuce or celery or apples or any other food, and be ingested when such food is eaten raw.

It has been shown by experiments on guinea pigs and other animals that the first thing a worm does when coming out of the shell as an embryo is to penetrate the stomach wall; it gets into the blood vessels, passes through the blood vessels to the trachea tube and into the pharynx, is swallowed, and goes down to the digestive tract. In laboratory animals pneumonias are caused by these worms in the lungs. It is not certainly known that such worms follow the same course through the lungs of children, but there is every reason to suppose that they do, and it is probable that they sometimes cause pneumonia.

It is impossible for laboratory workers to distinguish between pig round-worm and human round-worm. If eggs from a human are ingested by a pig, the parasites will develop. Feeding a child eggs from the pig has not been tried. So this problem of infestation with worms becomes much more difficult to control than when we thought ascaris lumbricoides was a parasite of man and only of man.

DR. PRESTON, *closing the discussion*: You will find that infestation with parasites accompanies trouble in the appendix and gall-bladder more frequently than is realized, if microscopic examinations are made oftener therefrom. Suitable vaccines made from cultures taken at operation, I believe, lessen the convalescence and subsequent operations.

SOME INDICATIONS FOR CALCIUM THERAPY.*

By O. O. ASHWORTH, M. D., Richmond, Va.
Medical Department, St. Elizabeth's Hospital.

Calcium is present in practically all cells and tissues. Only a few of the lower fungi are able to live without it. The daily requirement for man has been estimated as .7 to 1.5 gms. Excess of calcium is depressant to most nervous and muscular functions, and is antagonistic to magnesium and sodium. These systemic actions are produced only on excised tissue or with intravenous injections, since the absorption of calcium is quite slow.

Acute deficiency of calcium produces stimulation of the nerves and muscles, as is seen in oxalate poisoning. Stimulation may also be produced by an over-dosage of intravenous citrates or tartrates which decrease the ionization of calcium. Ordinary diets yield an average of 1 gm. of calcium per day. It is therefore probable that the intake may often be deficient, especially during pregnancy and lactation. It may easily be increased by drinking milk or diluting table salt with an equal amount of chalk.

Only a part of the calcium intake is absorbed. Forster estimates the absorption as about 60 per cent from meats and vegetables. A pint of milk will supply about .5 gm. of soluble calcium. Analysis shows that the administration of several grams per day of the chloride or lactate of calcium increases the calcium stock of the tissues even in well-fed adults. The red blood corpuscles contain very little calcium; so there is a marked difference between the calcium content of the whole blood and of the serum. The normal calcium content of the serum is between 9 and 11 mg. per 100 c.c., and is found decreased in but few pathological conditions. It is often decreased in tetany, scurvy, rickets, jaundice, acidosis and tuberculosis.

It has been pointed out by Halverson that the plasma is a practically saturated solution of calcium bicarbonate. The calcium content could therefore not be materially increased;

but any loss of calcium would be made good by the solution of calcium from the bones.

Experiments upon isolated organs show that increase of calcium ions decreases the permeability of the cell membranes of the vascular endothelium by its precipitant effect on the cement substance of the endothelium (Chiori and Janushe).

The intravenous injection of calcium prevents the pleural effusion which ordinarily occurs after the fatal doses of sodium iodid and diphtheria toxin. Deltjen observed that small traces of calcium lessen the solvent action of distilled water on cells. Herbst found that sea urchins swell when calcium is removed and shrink when it is added. Hulse interprets the discharge of edema fluids as being due to the diminution in the water binding power of colloids, which is caused by bivalent calcium cations. Haldane and his co-workers, in studies of the acidosis of calcium chloride origin, noted the diuresis, fall in alveolar CO_2 , the increased excretion of sodium, ammonia, and the total acids of the urine. These observers offer the theoretical explanation that the diuresis is due to the acidity whereby the blood and tissue proteins are brought nearer the iso-electric point, diminishing osmotic pressure and causing loss of water.

Blum and others have explained the diuretic action of calcium chloride by its effect on retained sodium. They believe edema is due to sodium retention. Calcium provokes a loss of sodium which carries with it water. It seems that after the injection of calcium chloride, the calcium is eliminated by the bowel while the chloride is absorbed, becomes attached to the retained sodium, and passes into the urine, allowing the escape of water.

Keith, Barrier and Whelan, of the Mayo Clinic, in treating two cases of nephritis with edema, found that calcium chloride caused diuresis and loss of edema. A study of the inorganic ions during the diuresis showed a positive balance of calcium and a negative balance of chlorine and sodium. In these cases sodium was discharged in the urine in large amounts.

In regard to the depressant action, the rhythmic contractions of skeletal muscle when immersed in sodium chloride solution are abolished by calcium. Over-dosage of intravenous injections lowers blood pressure, paralyzes the heart and respiration, arrests

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diuresis and checks peristalsis. Animals die of central paralysis a few days after injection of .3 to .4 gm. calcium chloride per kilo.

Pottenger first called attention to the value of intravenous injections of calcium chloride in the treatment of bronchial asthma and the relief of pylorospasm or enterospasm in tuberculous patients. He gives as a biological reason for its use in asthma, that asthma is due to a local vagotonia and a condition in which the neuromuscular mechanism of the bronchial system is in a state of hyper-irritability. The action of the vagus depends upon the presence of potassium, and increased vagus action depends upon a preponderance of potassium ions as compared with calcium ions in the bronchial tissues. The action of calcium upon the cell results in the same physiological process as adrenalin, and the effect of calcium is of much longer duration and is efficient in supplementing the action of adrenalin and relieving the paroxysms for a longer time.

Luckhardt and Goldberg found that completely parathyroidectomized dogs could be cured of parathyroid tetany by the daily administration of 1.5 gm. per kilo. body weight of calcium lactate orally, and that after several months its administration could be stopped entirely without the appearance of tetany. As a result of muscular exercise or excitement, recently parathyroidectomized dogs on a low calcium intake might show suddenly seizures seen in grand mal attacks of idiopathic epilepsy. On the basis of these findings, they suggested the use of calcium lactate in idiopathic epilepsy.

Walters, of the Mayo Clinic, in studying the cause of mortality in a series of cases of obstructive jaundice, found that 50 per cent of the cases who died after operation succumbed from intra-abdominal hemorrhage, and in most cases post-operative hemorrhage occurred when the coagulation time of the venous blood was more than 9 minutes. Study of the blood in jaundiced patients showed a deficiency of calcium, and the routine administration of 5 to 10 c.c. of 10 per cent calcium chloride intravenously greatly reduced the coagulation time of the blood and diminished toxemia in these cases with resultant lowered mortality following operation.

In a series of experiments with dogs by tying off the common duct, it was found that the dogs that received intravenous injections of calcium chloride lived much longer, and did

not appear so toxic as did those that did not receive the calcium chloride injections.

King and Stuart believe that bile pigments in combination with calcium are less toxic than uncombined pigments. They consider calcium a protective mechanism against the circulating pigments of obstructive jaundice. King, Biglow and Pierce conclude that obstructive jaundice produced in dogs results in a loss of calcium, the calcium being given up by the bone to neutralize the toxic bile pigments circulating in the blood and tissues. Such neutralization affords protection to the body, but may lead to secondary disturbances, such as bradycardia and changes in the blood coagulation time.

In view of the work of these investigators, the belief seemed justified that calcium offers the best means of preparing jaundice patients for operation. Calcium given by mouth has not proven efficient in these cases except in extremely large doses.

Calcium injected directly into the blood stream acts much like digitalis, in that small doses accelerate and strengthen the heart, and large doses seem to be poisonous, tending to bring the heart to a stand-still. No ill effects have been noted by those using calcium chloride intravenously. The patient first has a sensation of warmth about the face and neck, sometimes a slight tingling of the fingers and toes, or he may break out in a profuse perspiration and have slight nausea if the injection is given too rapidly. Tissue necrosis will occur if given outside the vein.

From a consideration of the foregoing facts, it seems that there is a rational basis for the intravenous or oral administration of calcium in the treatment of: (1) bronchial asthma, (2) hay fever, (3) serum disease, (4) spastic colon and spastic pylorus, (5) relief of pain in tuberculous enteritis, (6) nephritic edema, (7) tetany, (8) epilepsy, (9) hemoglobinuria, (10) purpura, (11) jaundice, and (12) recurrent pleural effusion in pneumothorax.

CASE REPORTS

Case 1. Mrs. G. V., aged 51, married, housewife. Under observation since June 25, 1924. Chief complaint: Asthma. Present illness began in August, ten years ago, not following any acute illness. She had been conscious of wheezing in chest practically all of the time since the onset. The paroxysms had been frequent since the onset and more severe during

March and August. They usually come on and last during "bad" weather. The paroxysms were relieved at first by injections of adrenalin, which eventually lost their effect. Iodides, vaccines and the various proprietary asthma remedies, had been tried, but gave only transient relief. She has been treated for a chronic sinus infection for four years. There is no history of pulmonary trouble in the family. Aside from thoracic signs connected with asthma, no abnormalities were noted except moderate cyanosis. From a general examination there was evidence of a chronic pansinusitis and pyorrhea. Laboratory examination: Sputum negative for tubercle bacilli. Urine showed a trace of albumin. Blood hemoglobin 85 per cent. White blood cells 8,900; eosinophiles 2 per cent. Protein sensitization tests to all of the usual foods, pollens and emanations were negative except that there was a four-plus reaction to chicken and goose feathers.

Treatment: The patient was advised to dispose of feather pillows and mattresses. An autogenous vaccine was made from her sputum and injections were given over a period of ten days, which seemed to aggravate the symptoms. On July 15th, the patient was given 5 c.c. of 10 per cent calcium chloride intravenously and thyroid extract was prescribed $\frac{1}{4}$ gr. after meals. The injections were repeated twice per week, and the patient stated that after the second injection she was more comfortable than she had been for years. She was given weekly injections of calcium chloride, and $\frac{1}{2}$ dram calcium lactate after meals over a period of three months and an occasional injection since. The expectoration decreased and she has had but few severe paroxysms of asthma, which she attributes to over-exertion in her work.

Case 2. Mr. C. O., age 22, white, male. First examined August 8, 1923. Examination of the chest showed evidence of advanced bilateral pulmonary tuberculosis with extensive activity in both lungs. After six weeks of rest in bed at home, the patient was sent to a sanatorium for nine months. He was discharged May 15, 1924, as unimproved. His poor progress was attributed to frequent digestive disturbances. He again came under observation May 24, 1924. His general appearance was slightly better than when first seen, but there was no evidence from physical signs of improvement in the chest condition. On July 8th

he began to have some general abdominal discomfort with diarrhea. A dose of castor oil was prescribed and followed by paregoric and chalk mixture. The diarrhea was checked, but his appetite was poor and the intestinal cramping persisted. Mild emesis was frequent after meals for several weeks. Intravenous injections of 5 c.c. of calcium chloride were given at five-day intervals from August 18, 1924, to December 1, 1924. The patient had a return of his appetite and was free from abdominal symptoms from August 19. He gained fifteen pounds in weight during the period of observation.

Case 3. G. D. A., a colored man, aged 45, was admitted to the City Home September 28, 1924, complaining of generalized edema, headache, blurring of vision, palpitation of heart, fatigue and dyspnea which had begun seven months before. His past history as given was negative except for the usual childhood diseases. During January, 1924, he had consulted a physician who had given him some treatment which produced some amelioration of symptoms but recently his condition had grown worse and he was admitted to the City Home on a stretcher. He was orthopneic.

The patient's skin was waxy and all parts of his body were edematous. The abdomen and both pleural cavities contained a large amount of fluid. The heart was considerably enlarged and there was soft systolic murmur heard at all auscultatory areas, loudest at the mitral area and transmitted to the axilla. The second sounds were accentuated. The systolic blood pressure was 190 and the diastolic 110; pulse rate was 88, being regular in force and rhythm. The urinary output was six ounces in twelve hours, with specific gravity 1.024, albumin four plus, many hyalin and granular casts. On account of the lack of facilities at the City Home, blood chemistry was not done. His hemoglobin was 80 per cent (Sahli); white blood count and smear appeared normal. Wassermann was two plus.

The patient was given a daily purgative and one quart of fluid was drawn from the abdomen. He was digitalized by the Eggleston method. His condition did not improve and six days later calcium chloride intravenously (10 c.c. of 10 per cent) was begun every 8 hours. There was marked diuresis and within three days the patient could lie flat in bed with comfort, and the generalized edema had disappeared. Abdominal paracentesis was

again done and three pints of fluid were obtained. Within eight days the fluid had disappeared from the pleural cavities and the patient was able to be up and around the room. **He was given routine antisyphilitic treatment.** He was discharged from the City Home after two months in apparently good condition.

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Medical Arts Building.

DISCUSSION.

DR. W. A. BRUMFIELD, *Blacksburg*: Has anyone made a study of the incidence of these affections, which are supposed to be benefited by calcium, east and west of the Blue Ridge mountains? West of the Blue Ridge, at Blacksburg, for instance, a man gets about a drachm of calcium carbonate a day if he drinks a normal amount of water. If calcium chloride will produce this effect, I wonder if calcium carbonate will? If so, any affection due to calcium deficiency that can be supplied by inorganic calcium should be unknown in limestone sections. We certainly get calcium in cooking utensils, stoves and boilers nearly everywhere in Virginia west of the Blue Ridge mountains.

DR. O. O. ASHWORTH, *Richmond*, closing the discussion: It is not known definitely what causes the diuresis after the administration of calcium chloride. It has been suggested that bivalent calcium furnishes chlorine ions, which become attached to sodium and potassium, which pass into the urine, carrying with them water.

THE PATHOLOGICAL VOMITING OF PREGNANCY.*

By ROBERT PATTON KELLY, M. D., F. A. C. S.,
Lynchburg, Va.

As a result of that disease, or condition, commonly known as hyperemesis gravidarum, or pernicious vomiting, far too many babies are victims every year of therapeutic abortion,

done conscientiously, of course, to prevent death of the mother.

Let no one infer from this statement that the writer is so extreme in his views as to consider this operation *never* indicated. On the contrary, he does believe that there have been many lives saved by recourse to therapeutic abortion, but he also believes that, with the proper treatment, the number of such operations can be greatly reduced and the birth rate thereby as greatly increased.

I have chosen to take as the subject of my remarks "The Pathological Vomiting of Pregnancy." I have selected this subject in order to distinguish the ordinary, probably non-toxic, vomiting from that which threatens life.

Just where to draw the line between pathologic and non-pathologic vomiting of pregnancy is frequently rather difficult. However, to the close observer, it is usually possible to distinguish between the two, especially if we resort to complete analyses of the urine and the blood.

Clinically, I would consider any case pathologic in which the patient has been unable to retain any food and little or no water for a period of several days. In such a case the urine would probably show heavy or slight reaction to acetone and to diacetic acid, depending, of course, on the severity and duration of the toxicity or starvation and dehydration.

Many present will find fault with these statements, no doubt, but I am speaking entirely from my personal experience, acquired from treating my own cases. Furthermore, there are very few men who are so situated that they can readily obtain blood sugar, CO₂ combining power, urea, etc., while, on the other hand, there are none who cannot examine for acetone and for diacetic acid; and my experience has been that, unless we can get rid of the acidosis in these cases we cannot hope for a favorable outcome.

I believe that some of these cases are of a nervous origin and that, due to the insufficient carbohydrate and the accompanying dehydration, they become *bona fide* cases of pathologic vomiting, curable only by relieving the acidosis and, incidentally, the starvation and dehydration.

It is assumed that each case is carefully investigated for foci of infection and for every possible abnormality that might exist. It is also assumed that the psychologic side of the

*Read at the fifty-six annual meeting of the Medical Society of Virginia, in Richmond, October 13-16, 1925.

case is carefully studied. Many of these patients reveal very vulnerable nervous systems. Some of them give a history of having been spoilt or humored, and, as a rule, seem to be devoid of all will power. It is no small task to overcome all this, and they usually seem to show no desire to co-operate with the physician.

As to the incidence of this "disease," figures vary. About fifty per cent of pregnant women have more or less vomiting in the early months of pregnancy. What percentage of these have pernicious, or pathologic vomiting, I am unable to state, but a sufficient number, I am sure, to cause the average obstetrician considerable worry.

In the early Fall of 1923, I suggested to Dr. R. B. Kennedy, then of the Chicago Lying-In Hospital, now of Detroit, the use of insulin with intravenous glucose, which latter we were already using to treat these cases. In the early part of January, 1924, I had a case of my own. I called Dr. D. P. Scott, an internist, of Lynchburg, who uses much insulin, and asked his advice as to giving this patient glucose and insulin intravenously. He seemed to think it plausible, but we did not employ it in this case.

In December, 1923, I was called to Roanoke by Dr. S. S. Gale to see with him one of the sickest patients of this type I have ever seen. The patient had been sent in from a distance by her physician to Dr. Gale for therapeutic abortion. In this case I advised intravenous glucose, which Dr. Gale administered. The patient recovered and was delivered in August, 1924.

cured. I want to report, in more detail, this and two other cases.

CASE 1. Mrs. A. L. B., age 36, Para 3, admitted to Virginia Baptist Hospital, December 14, 1924, 2 P. M., referred by Dr. J. W. Devine. Therapeutic abortion was strongly considered by Dr. Devine, due to the extremely serious condition of the patient, who had been unable to retain food or water for some days. Her first pregnancy was twins, complicated by toxemia and spontaneous interruption at six and a half months. Second pregnancy was two years later with no complications, a girl, birth weight 8 lbs., now living and well, 8 years of age; no pregnancies since.

Past history: Negative, except for usual childhood diseases and "violent headaches" all life. These occur once or twice a month and have no bearing on menstrual periods.

Last menstruation, first day, September 1, 1924.

When seen by me, December 14, 1924, patient was vomiting constantly, a typical picture of a severe acidosis. She was treated at first by absolute rest of stomach, sodium bromide and chloral per rectum, followed later by glucose and sodium bi-carbonate by Murphy drip. No improvement after 24 hours.

On December 15th, 6 P. M., 60 gms. glucose, 25 units insulin in 700 c.c. water was given intravenously.

BLOOD EXAMINATION.

December 15th—W. B. C., 11,900, large lymphs 5 per cent, small lymphs 19 per cent, polys 76 per cent, Wassermann negative.

Progress Notes:

December 14th—Patient seems quite ill, vomiting incessantly, both food and water.

URINALYSES:	Specific Gravity	Reaction	Albumin	Sugar	Acetone	Diacetic
December 15th, 10 A. M....	1022	Acid	0	0	4 plus	3 plus
December 15th, 5 P. M....	1026	Acid	0	0	4 plus	3 plus
December 16th, 12:05 A. M....	Not taken	Acid	0	1 plus	4 plus	3 plus
December 16th, 3 P. M....	1022	Acid	0	0	4 plus	2 plus
December 17th, 9 A. M....	1022	Acid	Tr.	0	3 plus	1 plus
December 20th, 4:30 P. M....	1024	Acid	0	0	0	0
December 21st, 9 A. M....	1012	Acid	0	0	0	0

On December 14, 1924, I was called in consultation by Dr. J. W. Devine, of Lynchburg, to see Mrs. A. L. B., who was suffering with a severe case of vomiting with pregnancy. Insulin and glucose were administered the following day, intravenously, of course, and the patient left the hospital in one week completely

December 15th—Glucose gms. 60, insulin units 25, in 700 c.c. water, given intravenously at 6 P. M.

December 16th—Since glucose solution in vein patient has practically ceased vomiting.

December 18th—Patient feeling much better, retaining both food and water.

December 20th—Feeling fine, sitting up, eating everything she wishes.

December 21st—Patient perfectly well; going home today.

CASE 2. Mrs. E. J. G., age 18, Para 1, admitted to Virginia Baptist Hospital, May 31, 1925, 11 A. M.; referred by Dr. D. P. Scott. On day of admission patient had been unable to retain food or water for five days.

Past history: Negative except for usual diseases of childhood, one attack of tonsillitis, "bilious attacks" two or three times yearly, and since marriage, fifteen months ago, almost monthly and at menstrual periods. Has always suffered from constipation and has "lived on medicine."

Last menstruation, first day, April 9, 1925.

When seen by me, patient was vomiting almost incessantly, was very nervous and showed usual appearance of a severe acidosis. She was treated initially as Case 1. In addition luminal sodium, grs. one and a half, was given one hour before meals, the latter consisting of dry food and no fluids for one hour before and for one and one-half hours after meals. After 24 hours no improvement was noted. Since the dehydration, starvation and acidosis were so severe, 80 gms. of glucose and 40 units of insulin in 800 c.c. of water were given intravenously at 5 P. M., June 1st.

June 4th—Patient feels fine and is eating practically anything she wants.

June 6th—Patient sitting up today, walking about hospital and eating whatever she desires except protein food.

June 7th—Patient completely cured; will go home this P. M.

CASE 3. Mrs. M. A. S., age 35, Para 1, admitted to Virginia Baptist Hospital, August 7, 1925, 8 P. M.; referred by Dr. Cross, of Concord, Va. This patient was seen by me with Dr. Cross, at Concord, on the afternoon of August 7th. She had been vomiting severely since July 15th, had been in bed three weeks, and was the sickest patient one could imagine; she was extremely emaciated, horribly nervous, vomiting continuously, and it was a question whether or not it was advisable to move her to Lynchburg in her terribly weakened condition. The prognosis, naturally, was grave, not only as to relief of the vomiting but also as to her life, even with an abortion, for she was in no condition to endure the operation.

Past history: Negative, except for childhood diseases. Married nine years.

Last menstruation, first day, June 13, 1925.

This patient was so sick that it was decided to give glucose at once. At 8:25 P. M., August

URINALYSES:		Specific Gravity	Reaction	Albumin	Sugar	Acetone	Diacetic
May 31,	11 A. M.....	1020	Acid	0	0	4 plus	3 plus
June 1,	9 P. M.....	1020	Acid	0	4 plus	3 plus	2 plus
June 2,	2 A. M.....	1012	Acid	0	4 plus	3 plus	Trace
June 4,	9 A. M.....	1017	Acid	0	0	0	0
June 6,	9 A. M.....	1017	Acid	0	0	0	0

BLOOD EXAMINATION.

June 1st—W. B. C., 6,100, large lymphs 5 per cent, small lymphs 33 per cent, polys 62 per cent, Wassermann negative.

Progress Notes:

June 1st—Patient feeling quite sick, vomiting everything taken; will give glucose this afternoon.

June 2nd—Feels very much better today, ate, enjoyed and retained supper 2 hours after glucose yesterday.

7th, morphine, gr. one-sixth, was given hypodermically, and at 8:40 P. M. the glucose solution was started. This consisted of glucose 80 gms. and insulin 40 units in water 800 c.c. Sodium bromide was also given per rectum, p.r.n., to quiet patient. On August 10th, the intravenous glucose-insulin solution was repeated as follows: Glucose gms. 100, insulin units 50 and water 575 c.c. On August 14th, glucose solution again repeated as follows: Glucose 80 gms., insulin units 40 and water 750 c.c.

URINALYSES:	Specific Gravity	Reaction	Albumin	Sugar	Acetone	Diabetic
August 7th, 8:30 P. M.....	1026	Acid	0	0	4 plus	4 plus
August 8th, 3:00 P. M.....	1026	Acid	0	4 plus	4 plus	3 plus
August 10th, 9:00 A. M.....	1025	Acid	0	0	4 plus	4 plus
August 11th, 9:00 A. M.....	1025	Acid	0	0	4 plus	4 plus
August 12th, 9:00 A. M.....	1017	Acid	0	0	3 plus	3 plus
August 13th, 9:00 A. M.....	1017	Acid	0	1 plus	3 plus	2 plus
August 14th, 9:00 A. M.....	1012	Slight Acid	0	0	3 plus	2 plus
August 15th, 9:00 A. M.....	1005	Neutral	0	0	Faint trace	0

BLOOD EXAMINATION.

August 15th—W. B. C., 5,700, large lymphs 2 per cent, small lymphs 18 per cent, polys 78 per cent, Wassermann negative.

Progress Notes:

August 9th—Patient doing much better than I expected; since getting the glucose has vomited *once* and has slept well past two nights; looks and feels much better. Am beginning dry food today.

August 10th—Gave glucose gms. 100, insulin units 50 in 575 c.c. water intravenously this P. M.

August 11th—Patient feeling much better, taking food and retaining it; general condition fairly good.

August 13th—Patient still improving, feeling better and has vomited very few times, then only small amounts of fluid; is retaining food and looks decidedly better.

August 14th—Patient feeling very good today but am giving glucose gms. 80, insulin units 40 in water 750 c.c. in vein, hoping this dose will entirely relieve the acidosis.

August 15th—Patient feeling very good, still improving; urine shows no acetone or diacetic acid.

August 16th—Patient feeling fine, sat up in chair one hour this A. M., goes home this P. M. in good condition.

With due credit to Thalheimer, of Milwaukee, who has reported several cases of pernicious vomiting, treated by glucose and insulin, I desire to call attention to the fact that some of my cases were treated prior to his first article in the *Journal of the A. M. A.* I refer you to the aforementioned dates. I also wish to offer what I consider an improvement on his method in administering the glucose and insulin. He recommends that the injections be given very slowly, over a period of three hours or more, and that the insulin be given hypodermically at certain intervals after certain amounts of glucose have been injected.

About a year and a half ago I wrote Dr. Walters, of Eli Lilly & Company, concerning this matter, and was advised to use one unit of insulin for every two grams of glucose to be given. Since that time I have given many intravenous injections of glucose, and have tried using one to three, and one to two, of insulin units to grams of glucose. I am convinced, from my own experience, that it is better to use one unit of insulin for every two grams of glucose. In addition to this, I have found, also, that it is much better to put the insulin directly in the glucose solution.

It may be of interest to some to state briefly the technique I follow in this work. To make a solution for intravenous use the following method is recommended: Distilled, filtered, sterile water the desired quantity; Lilly's 50 per cent, 20 c.c. ampoules of sterile glucose, the desired number, are thoroughly cleansed with alcohol, broken and emptied into the water, prepared as above; then the desired amount of insulin is added (one unit for every two grams of glucose). This mixture is then filtered through several thicknesses of sterile gauze in order to be sure there are no fine particles of glass in it and, the temperature of the solution being correct, is now ready for injection. The time consumed for one such injection varies slightly with the amount of fluid used but is usually one hour. The vein is never cut down upon; the needle, which should be rather small, is put through the skin into the vein in the usual way, the arm having been previously cleansed with iodine and alcohol.

By making a solution of the glucose-insulin mixture we have, of course, a solution in which there is a definite proportion of glucose to insulin in every drop of the solution as it flows into the vein. In other words, there is a better balance than when the glucose is put in the vein and the insulin given hypodermically. There is still another advantage; it is unnecessary to consume three or four hours to adminis-

ter the glucose, as Thalheimer advises, though it should be given reasonably slowly. Also, the patient is not so exhausted by this method of procedure, and does not dread a repetition of the treatment as much as when it is so long drawn out and when repeated hypodermics of insulin are used. Furthermore, it seems that the results are even better when the insulin is put in the glucose solution.

The difficulty has formerly been to get chemically pure glucose and to get it sterilized in solution without altering its chemical composition. The only objection I find to the ampoules is the size. I hope that Lilly, or some other concern, may decide to furnish larger ampoules of this 50 per cent solution, which might also reduce the cost of the treatment. However, I am sure that nothing so valuable as sterile glucose has been offered the profession in recent years, and I am sure that some patients and babies would be lost were it not obtainable. It is not only useful for this type of case, but also for many other conditions in which there is an acidosis, particularly in surgical cases, possibly also eclamptics.

The treatment of these cases by the usual methods has not been satisfactory. Many remedies have been suggested by as many authorities, and many have been the failures. Probably the most used one has been corpus luteum, recommended years ago by Hirst. My personal experience with this remedy has been disappointing, though, in a few instances, it has seemed to help somewhat. I have thoroughly tested its value by giving from two to four ampoules daily in the vein.

My present method of treatment is to put the patient in a hospital, immediately give her 80 to 100 grams of glucose, as described above, and no food or water, by mouth, for 12 to 24 hours; at the end of this period allow dry food; no water for one hour before or for one and one-half hours after taking food, but abundant fluids at other times. If the results of this treatment are satisfactory, thus far, the patient is then given a very liberal carbohydrate diet, including candy if she so desires. The urine frequently shows sugar at the next voiding following the glucose injection, but it very soon disappears, and along with this the acetone and diacetic acid decrease or disappear. In fact, the results we get in some of these cases are little short of miraculous. It may be necessary to use the glucose a second time, or even a third, in some cases, though one

treatment is often sufficient to bring about a cure.

There are several important points in the treatment: First, give large doses; 80 to 100 grams of glucose, as prescribed above, is the amount I usually give. I failed in one case, due, I believe, to small doses, though I carried her along for one month. There were, however, several obstacles in the way, over which, unfortunately, I had no control. I gave this patient glucose and insulin six times, she improved after each injection, especially after the first, but I was never, with my small doses, able to free her urine of acetone or diacetic acid. I really believe large doses, with the use of luminal sodium, which was not given, would have done the work for her.

The three cases reported were very severe ones, especially the case of Mrs. M. A. S. She had been unable to retain any food and very little water for three weeks; she vomited practically none after the first injection.

I desire to mention one other remedy which I have found more helpful than anything else with the ordinary cases of vomiting and nausea. It is also very helpful with the severe ones. This is luminal sodium, given in doses of one to one and a half grains, t.i.d., one hour before meals, and, if necessary, one tablet at bedtime. The patient is allowed no fluids for one hour before or for one hour and a half after eating. Plenty of fluid is allowed between these hours, and only dry food for meals. Surprisingly good results are obtained from this. In fact, I have discarded corpus luteum, and many other remedies, since I began the use of this. When this fails I send the patient to the hospital for the glucose and insulin treatment.

In the treatment of the vomiting of pregnancy I depend *chiefly* on two remedies, and those cases which I am unable to cure with luminal sodium I treat with glucose and insulin.

CONCLUSIONS.

I am absolutely certain that our abortions for the pathologic vomiting of pregnancy can be almost entirely prevented by the earnest application of this treatment.

Be sure to prepare the solution with the greatest care, using distilled water, well filtered, and filter through sterile gauze after preparing.

Occasionally there may be a chill and a temporary rise of temperature, but I have seen

no harm come from this treatment. Faulty technique or impure solutions might result in serious trouble.

The glucose may be given in a 5 to 10 per cent, or even stronger, solutions.

Use only a chemically pure glucose, preferably that put up in ampoules. I have *heard* of one death which was probably due to the use of an impure solution.

Much work has been done by Titus and others, and is still being done, in the use of glucose and insulin. There is some question as to the advantage of using insulin with the glucose, but it seems that if insulin aids in relieving acidosis and in carbohydrate metabolism in diabetics it should also be of value in cases of this kind, where large amounts of glucose are put in the blood stream.

As a result of my experience with these cases, three indications stand out pre-eminently in importance in the order named: (1) Overcome dehydration; (2) supply carbohydrates, and (3) relieve nervousness and produce sleep. The first is done by using plenty of water with the glucose intravenously, by rectum and under the skin, if necessary. The second is done by large doses of glucose in the vein until vomiting ceases and then carbohydrates by mouth. The third is accomplished better by the use of luminal sodium than by any other remedy I have tried. This drug relieves the nervousness and produces the sleep which is so essential in these cases, and, until the stomach is able to retain this drug, I depend upon sodium bromide per rectum.

DISCUSSION

DR. DAVID S. HILLIS, *Chicago, Ill.*:—I have been very much interested in this paper of Dr. Kelly's, in which he has explained so clearly the method that we have come to regard as perhaps the best thing that we have in the treatment of these early toxemias of pregnancy. It has been proposed to use glucose in all the toxemias of pregnancy, and later insulin has been used in both conditions, in addition to the glucose. I, for some time, have been using glucose in the treatment of both conditions, and I found the glucose itself so satisfactory in the treatment of the early toxemias that I began the addition of insulin only rather lately, so that my experience with insulin has been limited. I have used glucose and insulin in the late toxemias, i. e., the eclampsias, of which we have a very severe type at the hospital in which I work, the Cook County Hospital in Chicago. Although I was very much impressed with a few cases I had in the beginning of the series, before we got through with a series of about thirty cases we found that our mortality was the same as before we used glucose and insulin. I think the method now, with the modern preparations, is available to every doctor who is in general practice. Even in the hospital we have had trouble getting prepara-

tions that we felt were suitable to put in the vein. Double distilled water is available in ampoules, rather smaller than they should be, and glucose is now put up in sterile ampoules. One of the difficulties with glucose is that patients get reactions from it. There has been question as to what strength the solution should be.

In our series we used a rather weak solution, five to ten per cent and, in giving the five per cent solution, we had two fatalities. In corresponding with some of the men who have done most of the work in this, we decided the patients had been given too much fluid. Dr. Titus, who did some of the pioneer work with glucose in toxemias recommended a twenty per cent solution. He says he gets less reaction from that than from the five and ten per cent, and that agrees with our experience.

I think the question of whether or not insulin added to the glucose is desirable is one that has not been entirely decided. I think we have not had enough experience to know whether insulin is always needed. I see no objection to using insulin if we always keep within safe limits. Of course, insulin is a very potent drug, and if we add a hypoglycemia to the difficulties that our patient already has, we shall probably do more harm than good. If we use the insulin as Dr. Kelly suggested, there is no question that we shall stay within the safe limits, and very possibly it will be found that the insulin with the glucose is the best thing we have had so far in the treatment of these early toxemias.

SOME PROBLEMS IN THE DIAGNOSIS AND TREATMENT OF SIMPLE GOITRE.*

By WM. H. HIGGINS, M. D., Richmond, Virginia.

Our present knowledge of the thyroid gland is the result of a century of study. During this period a voluminous literature touching upon its various aspects has given us a more intimate understanding of this gland than of any other member of the endocrine system. In spite of these intensive studies it must still be admitted that our conception of its relation to the chemistry and physiology of the body is yet in its infancy.

From a practical standpoint we recognize two distinct dysfunctions of the thyroid gland; namely, the hyperactive and the hypo- or underactive types. The latter group may be still subdivided into simple goitre and myxedema, although one may fade into the other. A discussion of certain phases of the simple goitre forms the basis of this paper.

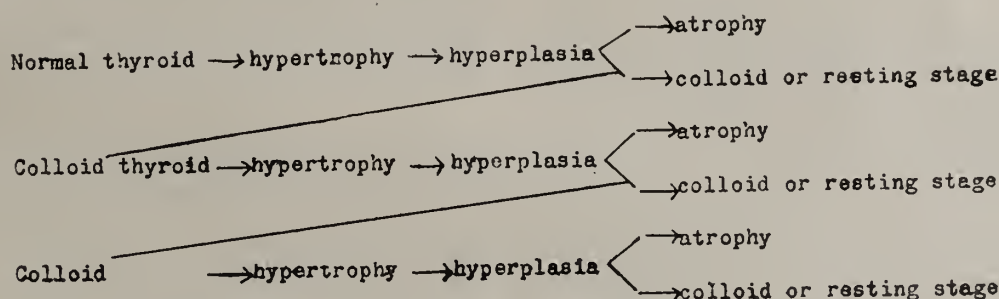
PHYSIOLOGY

It is now generally believed that simple goitre is a compensatory hyperplasia of the thyroid gland brought about by certain chemical changes within the body or an actual deficit

*For the Medical Department, St. Elizabeth's Hospital, Richmond, Virginia.

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in the intake of iodine. This functional underactivity may result from; first, increased demands within the body for iodine such as during pregnancy, lactation, puberty, menopause and certain infections; secondly, from interference with the absorption of iodine from the intestinal tract; and thirdly, from deprivation of iodine in the food and water. In other words wherever there is an actual iodine deficit there is a reaction in the thyroid gland in the form of compensatory enlargement. In order that the practical application of this point in the diagnosis and treatment of goitre may be made, a brief reference to Marine's studies¹ on thyroid physiology may not be amiss. As pointed out by Marine, the thyroid is a labile tissue capable of marked hyperplasia and involution in response to variations in functional activity. He showed that the iodine store varies inversely with the degree of active hyperplasia and that if the iodine content was higher than .1 per cent no hypertrophic changes were present. The cycle of events in the goitrous gland is relatively simple as is shown on the accompanying schema.



Following an iodine deficit, the thyroid gland passes through the stages of hypertrophy and hyperplasia and continues in this phase until an adequate supply of iodine is obtained which immediately produces the colloid or resting stage. The colloid gland is the condition nearest the normal both anatomically and chemically that a gland can assume which has once been in the state of hyperplasia and such colloid glands are capable of all the reactions of a normal gland. Marine has succeeded in repeating the cycle of hypertrophy, hyperplasia and involution many times experimentally on dogs and has shown conclusively that simple goitre is dependent primarily on an iodine deficiency. Supplementing Halstead's work he demonstrated that congenital goitres were likewise tissue reactions to a withhold-

ing of iodine which could be readily controlled by giving a few milligrams of the drug during pregnancy. In the light of these studies we are able to approach the clinical problems with a moderate degree of assurance.

Since the publication of Marine and Kimball's studies iodine therapy as a prophylactic and curative measure has been popularized to a degree not even dreamed of in the past. Coincident with this merited enthusiasm, there is some reason to believe that considerable misunderstanding has arisen regarding the proper use of iodine in the treatment of simple goitre. Part of this apparent misapprehension may be due to the frequent failures in the cure of the adolescent goitre and to a confusion as to the type of goitre amenable to iodine treatment. Another possible source of error is the proper dosage and length of time suitable cases should be under treatment.

METHOD AND LIMITATIONS OF IODINE THERAPY

The general experience of most clinicians is that relatively few adolescent goitres actually disappear under iodine therapy although there

is a definite indication for its use. As a rule such goitres are not seen until fully developed and are often beyond the curative stage before professional advice is sought. A glance at the anatomic cycle in the Marine schema will show that such goitres are curable only during the hypertrophic and hyperplastic stages where there is an iodine deficit in the tissues. After the colloid stage is reached no relief may be expected from iodine except as a preventive for further enlargement. There is good reason on the other hand to anticipate satisfactory results in the earliest appearance of an enlargement, particularly noticeable during menstruation, pregnancy and lactation. As it is impossible to clearly differentiate the hyperplastic from the resting or colloid state in the majority of adolescent goitres the judicious

use of iodine should be tried with the hope of at least preventing an additional enlargement. On account of the functional under-activity of the gland during pregnancy there is sufficient basis for the belief that iodine at this time, even in the absence of any hyperplasia would be beneficial to the mother as well as the foetus. It has been clearly demonstrated that goitrous pups can be prevented by administration of iodine to the mother showing evidence of goitre.

The second source of misapprehension is the type of goitre amenable to iodine treatment. Before a working classification of goitre was formulated, iodine was given in some form to all types regardless of age or symptomatology. The brilliant results obtained in one case naturally prompted the physician to use it in all similar or near similar conditions. The disastrous results of such therapeutic reasoning robbed the drug of its popularity and there came a period of skepticism in regard to its use in any type.

TYPES OF GOITRES

Shortly after the publication of Marine's studies on simple goitre, Plummer and others demonstrated an iodine deficit in exophthalmic goitre in which brilliant results followed the administration of the drug. The indications for its use in this type are well understood and need no further comment than to state that fully 90 per cent of exophthalmic goitres are rendered temporarily quiescent by the administration of some form of iodine. Unfortunately a third type of goitre similar in many respects to both of these remains on which iodine not only has no favorable influence but frequently converts a latent cell group into a highly toxic adenoma. It is in this form of adenomatous goitre that the greatest danger lies in the use of iodine. This type is the result usually of groups of undeveloped thyroid cells which from increased functional activity of the gland develop into adenomata. They are variable in size and number and often are present in the simple adolescent goitre. During the early years of its existence no symptoms are present and outwardly varies little in its appearance from colloid goitre. Should toxic features arise, it is as a rule only after many years of enlargement of the gland and so the patients are generally past the age of thirty.

It is generally accepted that the majority of simple goitres disappear spontaneously by the twenty-fifth year. Those which remain are prone to harbor nests of latent adenomatous cells which are often inactivated by the administration of iodine resulting in the state of toxic adenoma. The recognition of this type is at times difficult as it may clinically simulate either of the other forms. The facts that it is uncommon during adolescence and is gradual in its onset are helpful guides in its differentiation. In view of its frequency after the age of thirty, it is doubtful whether iodine should be used in the treatment of adolescent goitre beyond the twenty-fifth year and should be used only in small amounts before that period. This conclusion is reached by the results of widespread commercial and professional uses of iodine in the prophylactic campaign against the development of goitre.

In 1917 Kimball began the routine administration of iodine in the goitre district around Cleveland. In a recent report² of this measure, he stated that in a series of 2,659 cases of hyperthyroidism treated by him during the following four years, there were 309 in which it appeared that the symptoms of hyperthyroidism had been precipitated by the use of iodine. All of these patients were past forty years of age and in each case the gland was clinically or microscopically adenomatous. Of this number 2 per cent had used iodized salt, 12 per cent had taken self medication and 86 per cent had received iodine from their physicians. The gravity of this situation is further borne out by the experiences of clinics in various sections of the country. The following personal communications reflect the present status of iodine therapy:

Dr. Geo. W. Crile³, of Cleveland, writes: "We have never seen such a series of induced toxic adenomas as we have had during the past eighteen months. This has resulted from the injudicious use of Lugol's solution and iodized salt as well as syrup of ferrous iodide in cases of simple adenoma without symptoms."

Dr. Willard Bartlett³, of St. Louis, states: "I am more and more perplexed by the increasing number of toxic adenoma. So far as I can see, the very general use of iodine is responsible for the onset of toxicity in very many of these patients whose goitres apparently were quite benign until they began to take this



Incidence of simple goitre in Virginia. Plus (+) indicates unusual frequency, plus-minus (+-) moderately prevalent, and zero (0) only an occasional case. These results were compiled by State Board of Health and are reproduced through the courtesy of Dr. Ennion G. Williams, Commissioner of Health, of Virginia.

drug independently or at the suggestion of some physician unable to make a differential diagnosis of the variety of goitre present."

Dr. Frank Lahey³, of Boston: "We rarely see a thyroid now that has not been on fairly large doses of iodine and we feel quite sure there is an increase of the toxic adenoma from this cause. I do not believe the small prophylactic doses produce the toxicity but large and persistent doses."

Dr. Dean Lewis³, of Baltimore: "It seems to me that there has been an increasing number of toxic adenomas appearing during the last few months. Physicians do not have clearly in mind what they are dealing with and give iodine to those cases which are undoubtedly made worse."

The third problem in the treatment of suitable types of goitre is the dosage and method of iodine administration. Unquestionably there has been an universal tendency to overdosage. Although some persons apparently have a relative immunity to iodine, others develop toxic symptoms on minute doses over a short period of time. Kimball has reported the initiation of hyperthyroidism in an adult following the administration of one-half of a grain of iodine daily for one hundred days. It is generally considered that 10 mg. daily for short periods should be the maximum adult dose and a corresponding reduction for children. Long standing benign goitres in adults after the twenty-fifth year should receive no iodine at all and extreme caution should be

exercised with all persons over twenty. Clinical evidences of an adenomatous goitre absolutely contraindicate its use at any age but fortunately such types are rare under thirty when iodine is most frequently prescribed.

EDUCATIONAL PROPAGANDA

The prophylactic treatment of simple goitre as given by Marine and Kimball has proven eminently satisfactory so far as children and young adults are concerned. Entire communities have been practically relieved of what was previously an ever present menace in the sections where there was an iodine deficit. The only debatable point has been the best method of distributing the necessary amount of iodine. The most effective measure has apparently been the intensive campaign devoted exclusively to children of school age in the goitrous districts. By this method the adult population was not iodized and there were no unfavorable reports of induced hyperthyroidism. These widespread measures, however commendable they may be in themselves, have encouraged a form of self medication which has reached a point of at least potential danger. Newspapers and magazines have so frequently published articles on iodine and goitre that the laity has come to consider one a cure for the other. Patent medicine concerns have taken advantage of this propaganda and have supplied the public with various iodine compounds for the cure of goitre without regard to its type.

It would seem from these observations that a well directed educational campaign on the part of the medical profession is imperative. It is reasonably clear that a large majority of physicians are either failing to differentiate the various types of goitre or are entirely too lax in the administration of iodine. Our State Board of Health has sent out a creditable Bulletin⁴ on simple goitre but unfortunately it leaves the reader with the impression that iodine medication is often a life long necessity especially in those cases showing the symptoms of extreme nervousness. The public should be taught that iodine is not a harmless drug and that even in minute quantities it may convert a simple adenoma into a toxic goitre. Iodized salt which is now so commonly used contains only .01 per cent of iodine but no less an authority than Kimball believes that it may precipitate a thyrotoxicosis and has recently reported a case to that effect.

In conclusion, may I add that the medical treatment of simple goitre consists: first, in a careful selection of cases with due regard to age; second, the use of minute quantities of iodine over short periods of time, and third, the necessity of close observation throughout this period.

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Medical Arts Building.

THE SURGICAL TREATMENT OF NON-PARALYTIC STRABISMUS.*

By JOHN H. DUNNINGTON, M. D., New York City.

Before considering the surgical aspect of this subject, let me remind you that many cases of strabismus respond satisfactorily to conservative treatment. This treatment consists in the correction of the refractive error; the development of vision in the squinting eye; and the use of orthoptic exercises. The earlier this treatment is started, the greater the chance for success; however, there are cases in which these measures fail and it is to the correction of these that I wish to direct your attention. No case should be considered surgical until a

thorough trial of these conservative methods has convinced you that in surgery lies the only relief. With this conviction before you the decision of when and how to operate must be reached.

THE TIME OF OPERATION

For years this has been a mooted question and it still remains one in which there is a great diversity of opinion. The pros and cons of this subject are familiar to all of you. My opinion can not be better expressed than in the words of Duane¹ who in 1910 said, "our decision once made, I see no reason for waiting. Usually the longer we wait the more unfavorable for operating the conditions become. To let a child go on for years with a convergent squint, simply because in a small percentage of cases the operation for remedying the condition turns out ill, seems to me ill advised timidity."

THE CHOICE OF OPERATION

The intelligent selection of the type of operative procedure indicated in strabismus requires a knowledge of its etiology.

A lateral strabismus may result from:

1. A paresis or a spasm of one of the extra-ocular muscles.
2. An anomaly of divergence.
3. An anomaly of convergence.
4. A combination of any two or all three of these conditions.

It is necessary to tell which one of these factors is at fault and for this differentiation we must know:

1. The motility of the eyes in the six diagnostic positions of gaze.
2. The amount of deviation at twenty feet and at thirteen inches.
3. The near point of convergence.

Normal motility of the eyes in the six diagnostic positions of gaze rules out any paresis of the extra-ocular muscles. Since lateral squints are sometimes caused by a paresis of one of the vertical muscles it is important to make the patient move the eyes in all six directions of gaze. The most common example of this type of case is a convergent squint resulting from a congenital paresis of a superior rectus. Here the diplopia caused by the paretic superior rectus is readily ignored when a secondary spasm of convergence makes the images have a wide lateral separation. Nature by superimposing this convergence spasm gives

*Read before the Richmond Society of Ophthalmology and Oto-Laryngology, May 18, 1925.

relief from the vertical diplopia. The convergent strabismus may so overshadow the vertical deviation that the latter is entirely overlooked. Unless the vertical error is corrected, any operative procedure aiming at removal of the lateral squint will result in only a temporary improvement. The vertical diplopia will still be present and will cause a recurrence of the lateral deviation.

Estimation of the amount of deviation present at both twenty feet and thirteen inches tells us whether the squint has been caused by an anomaly of divergence or convergence. A deviation most pronounced at twenty feet means primarily an anomaly of the diverging power, whereas one that is greatest at thirteen inches denotes an error of convergence. The estimation of the amount of strabismus present at both distances can best be done by the screen test. By this simple test it is easy to measure any deviation (heterophoria or squint) except one occurring in a patient who has lost the power of central fixation in one eye. Here we can only get an approximate idea of the amount of deviation by the cruder methods, *e. g.*, Hirschberg's corneal reflex test or the perimeter test. Usually when such a high degree of amblyopia is present the squint is constant and approximately the same for both distance and near.

The patient's ability to converge is best determined by a careful estimation of the near point of convergence. It is not uncommon in divergent strabismus to find a normal near point of convergence, showing that the divergence is not the result of any weakness of convergence but has been caused by an overactive power of divergence. In convergent squint a spasmodic inshoot of one eye on taking the near point of convergence indicates a spasm of convergence. I find the most satisfactory test object for this test to be a dimmed ophthalmoscope light, *e. g.*, the May ophthalmoscope with its head and cap removed, and the light at its lowest intensity.

Duane² has taught us that most lateral deviations begin as an anomaly of convergence or of divergence and that having started in this way they gradually become constant through a secondary involvement of the originally unaffected power. Worth,³ on the other hand, contends that the deviation is the direct result of a defective power of fusion. It is possible that both factors enter into the production of

a squint but I believe the predominant cause to be a dysfunction of the converging or diverging power. Therefore, the type of operation employed will depend not so much upon the direction of the deviation as on its essential nature.

A non-paralytic divergent strabismus may be caused by a divergence excess or convergence insufficiency. In divergence excess, the convergence near point is normal and the deviation most pronounced at twenty feet. Here the operation indicated is a complete tenotomy of one or both external recti; usually both externi have to be completely tenotomized to produce a satisfactory correction. An immediate over-correction of at least fifteen prism degrees is desirable. If the divergence is most pronounced at close range and there is an inability to converge, some form of shortening of the internus must be used. When the squint is the same for both twenty feet and thirteen inches, a combination of a tenotomy of an external rectus and a shortening of an internal rectus should be advised, as the patient now has both a divergence excess and a convergence insufficiency.

Non-paralytic convergent squints are caused by either an excessive power of convergence or an underactive divergence. Convergence excess shows practically normal distance findings but a squint at close range. When such are our findings and there is no refractive error (hyperopia) to account for the squint, the operation to be used is a weakening of an internus. Most convergent squints begin in this manner but occasionally they start as a divergence insufficiency with an inward deviation for distance but none for near. The externi must be shortened to correct this type of squint. Frequently, however, we are confronted with a squint that is equal in amount at both twenty feet and thirteen inches and uninfluenced by the proper refraction, then we must resort to the combined operation of shortening an externus and weakening an internus.

With such different etiological factors entering into the production of a squint, it is evident why no one operation is suitable for all cases. In general, our operative procedure consists either in strengthening or in weakening a muscle. There are numerous methods in vogue to accomplish this end, and each operator considers that his is the only satis-

factory technique to follow. This is not true for good results can be accomplished by the use of any one of several techniques.

The two methods of strengthening a muscle with which I have had personal experience are Wootton's modification of Worth's advancement and Reese's resection. Either procedure works well but I prefer the resection because it is simple and easy and does not leave a lump of tissue at the limbus which after an advancement persists for many weeks. Furthermore, I believe a resection corrects as much deviation as an advancement. Tendon tucking has its advocates but I can see no reason why the piece of tendon which is overlapped should not be excised and the cut ends sutured together.

To weaken the action of a muscle we have three procedures to choose from:

1. Complete tenotomy.
2. Incomplete tenotomy.
3. Recession.

I reserve the complete tenotomy for use on the external rectus. In divergence excess it is ideal and I see no reason to fear a complete severance of this muscle providing its lateral attachments are not unnecessarily disturbed. It is unwise completely to tenotomize an internus because a secondary divergent squint is liable to occur. Should it appear, a reattachment of the muscle previously tenotomized, while slightly more difficult, usually results in a satisfactory correction.

Incomplete tenotomy has been used for years with fair success. It is practically always done on the internal rectus. There are many ways of incompletely tenotomizing a muscle but the one I have found most practical consists in severing all but the uppermost and lowermost strands of the tendon. The difficulty lies in judging just how many fibres have to be left to prevent a partial paralysis of the muscle. The tendency has been to push the tenotomy too far in order to increase the effect. If this is done we are likely to get a destruction of the power of convergence, limited inward movement, a sinking of the caruncle and, in time, a secondary divergent squint.

Since Jameson⁴ in 1922 called our attention to the recession, it has been hailed as the operation above all others to be used. The operation consists in a complete tenotomy plus scleral anchorage. The muscle attachment is com-

pletely severed and reattached to the scleral coat by means of sutures. Jameson in the description of his operation after freeing the muscle uses three sutures to anchor the tendon to the sclera. Agatston⁵ and others have used a single stitch in the recession. I have employed a single double armed suture to fasten the muscle to the sclera using practically the same technique as Agatston's. The only difference is that I prefer to close the conjunctival wound with interrupted sutures. My suture in the sclera is brought out through the conjunctiva several millimeters from the cut edge and tied, then the conjunctival wound is sutured independently. This technique I believe gives better apposition of the conjunctival edges and thereby promotes healing by primary intention. The needles are small, sharp and full curved, twisted silk Nos. 1 and 2 is used. As the sclera is less than 1 m.m. thick at this point, the sutures must be placed superficially in it. This is accomplished by keeping the point of needle visible at all times; the importance of this manoeuvre Jameson has stressed.

The indications for recession are the same as those for tenotomy. It simply gives us a safer way to weaken a muscle without paralyzing it. Since a paresis practically never follows a complete tenotomy of an external rectus, I have used the recession only in convergent strabismus. I have substituted it for the less accurate guarded tenotomy and feel that with it we can be surer of our results. It has its limitations as well as its usefulness and I can not agree with the enthusiasts who now see no reason for ever using any other operative procedure. I believe that if the attachment of a tendon is receded more than 4 m.m. there is a genuine likelihood of a resultant partial paralysis of that muscle. Furthermore, I doubt if we will ever be able to say that for every m.m. of recession we will invariably get so many degrees of correction.

OPERATIVE RESULTS

Fifteen years ago Duane¹ said, "No one can predict with certainty what the ultimate result of a tenotomy or an advancement is going to be although in most cases we can form a pretty fair idea. We should have this tendency to remote failure in mind and try to obviate it by shaping our operation accordingly. But in any event we should not be deterred from

operating through dread of these remote ill consequences, which occur but rarely, and can almost always be remedied." This is a conservative statement of the operative prognosis. The results seem to justify a more optimistic outlook for the percentage of failures is extremely small. It is impossible to predict with certainty that one operation will entirely correct a deviation for it may be necessary to repeat the procedure. However, if the proper type of operation has been chosen we can proceed with confidence and with the knowledge that the deviation can be removed. Post-operative diplopia strikes fear in the hearts of many ophthalmologists. It does occur but usually is transitory and, if permanent, rarely causes the patient much annoyance. We can avoid most post-operative diplopia by not tenotomizing so freely that we produce a paralysis of that muscle. We must not be contented with eyes that appear straight in the primary position but manifest a decided limitation of movement in certain directions of gaze. We must preserve the power of convergence and prevent a retraction of the caruncle. Abolition of convergence will certainly follow indiscriminate tenotomy of the internal rectus. Before deciding upon the result of our operative endeavor, it is well to measure the amount of residual squint for distance and near, and carefully note the inward movement of the operated eye both in convergence and in adduction. Look with suspicion on any case left with a poor power of convergence, for, in time a secondary divergence is likely to occur.

SUMMARY

The early correction of a squint is advisable; if possible remove the deviation before it becomes constant, *i. e.*, while it is still periodic. Use whatever means are necessary to accomplish this end. Operate when indicated regardless of the age. No one operative procedure is ideal for all cases. The selection of the type of operation indicated is made by estimating:

- (a) The amount of deviation present at both twenty feet and thirteen inches.
- (b) The near point of convergence.
- (c) The motility of the eyes in the six cardinal directions of gaze.

The operative techniques which the writer has found most satisfactory are:

- (a) Reese resection where an increase in function of any of the recti is desired.

(b) A recession when a decrease in function of the internal rectus is wanted.

(c) An open complete tenotomy when the external rectus is to be weakened.

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PATHOLOGY OF HEART-PAIN.*

By JAMES A. WILKINS, M. D., Norfolk, Va.

Owing to the fact that the underlying pathology of heart-pain is so manifold, the anatomic diagnosis of the cause of this condition is difficult in many instances, even when the internist is well acquainted with the pathologic changes that occur in the heart and blood vessels. Since heart-pain, either with or without hypertension, usually gives few clinical signs, the electrocardiogram and Roentgen-ray are often of value in diagnosis and prognosis. The diagnosis of heart disease cannot always be made on the presence of a murmur alone, nor does the absence of a murmur exclude cardiac pathology. Of the many patients with marked cardiac hypertrophy and hypertension, relatively few show a heart murmur on examination. It has been stated that the study of a group of such patients in the stage of heart failure has shown that 50 per cent have no constant murmurs. It is a well-known fact that if we were to rely on the presence of murmurs alone, true heart disease would often be overlooked. In these cases the electrocardiogram may indicate pathologic changes in the heart muscle, such as diffuse fibrosis, resulting in an abnormal conduction of the impulse. However, the most important thing is a careful history and physical examination, with a sufficient period of study before the final diagnosis and prognosis are made. The electrocardiogram cannot take the place of that. In addition to the history, the physical examination, and the period of observation, it is essential that the examining physician has had his share of experience with heart-cases, and sufficient common sense to advise his patient intelligently, and not be misled by an elaborate electrocardiographic report

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indicating a bad prognosis, for this machine is not infallible in its present state of development. A brief review of the more common pathology causing heart-pain follows:

Clinically, heart-pain is almost invariably associated with coronary arteriosclerosis. In a review of 86 cases of coronary sclerosis, both clinically and at autopsy, by Willius at the Mayo Clinic, the following points of interest were brought out:

First, that in these 86 cases, typical angina pectoris occurred in 24 per cent. This type included those patients in which attacks of retrosternal pain were induced by cardiac strain. The seizures were usually of short duration, and they were generally relieved by rest or nitrites. The average coronary sclerosis in this group was very marked (3 plus on the basis of 4), and in 66 per cent of the cases some of the coronary vessels were completely occluded. In 14 per cent myocardial infarction had occurred. Besides coronary sclerosis, 19 per cent of the patients had syphilitic aortitis, one had an aneurysm of the root of the aorta, and another had a diffuse aneurysm of the aortic arch.

The second group of the 86 cases of coronary sclerosis was classified as atypical angina pectoris. By this is meant a syndrome consisting of attacks of pain induced by heart strain and usually located in the upper abdomen. These symptoms may lead to confusion with surgical diseases of the abdomen requiring surgical treatment. Atypical angina occurred in about 2 per cent of the cases.

The third group was that of progressive myocardial failure. It was characterized by the absence of pain and the presence of the ordinary symptoms of a failing heart, such as dyspnea, orthopnea, cyanosis, cough, and anasarca. This syndrome occurred in 26 per cent of the cases. The average coronary sclerosis in this group was moderate (2 plus), and coronary occlusion occurred in only 23 per cent. Myocardial infarction was present in 14 per cent of these cases.

The fourth group was that of angina pectoris associated with progressive myocardial failure. In this group the symptoms of a failing heart were present in addition to typical attacks of angina pectoris. The syndrome occurred in 8 per cent of the 86 autopsies. The average degree of coronary sclerosis in this group was marked (3 plus), and the incidence of occlusion was high (57 per cent). Infarc-

tion of the myocardium occurred in only 14 per cent of the cases.

The fifth group of the 86 patients with coronary arteriosclerosis was that of occult or clinically unrecognized coronary sclerosis. In 40 per cent of the cases coming to autopsy, the diagnosis of coronary sclerosis was not made by the clinician. A large majority of these patients were old, they had no cardiac symptoms, and the coronary sclerosis was a manifestation of advancing years. This finding indicates the importance of appreciating the fact that a considerable degree of coronary sclerosis may exist with relatively little cardiac insufficiency or other evidence of organic heart disease. The average degree of coronary sclerosis was moderate (2), and occlusion occurred in only 15 per cent of the patients, the lowest incidence in any of the five groups.

In conclusion, the pathology of three serious heart conditions will be mentioned briefly, for these, in addition to coronary sclerosis of whatever cause, are responsible for heart-pain in the great majority of adults when there is an organic basis for cardiac symptoms.

The first is syphilitic aortitis, which as a rule is revealed clinically by a faint systolic blow over the aortic area. This murmur can generally be heard best at the end of forced expiration when the patient is recumbent. At least three pathologic processes resulting from syphilis may cause this murmur. It may be due to sclerotic plaques in the root of the aorta; it is sometimes caused by an organic dilatation of the aortic ring, as a part of the process of diffuse dilatation of the aorta, which almost invariably occurs in cardiovascular syphilis; or it may at times result from syphilitic thickening of the aortic leaflets. In patients with cardiovascular syphilis of long duration, the coronary arteries are frequently dilated to such a degree that their lumina are even twice the diameter of a normal coronary, but in such cases the coronary orifices in the aorta are usually almost completely obliterated by arteriosclerosis.

The second is coronary thrombosis. The most severe heart-pain may occur suddenly as the result of a thrombus forming in an arteriosclerotic coronary in a person who has previously been in the best of health. If a small branch of a coronary artery is occluded, the patient may recover even after the pain has continued without remission for days. The heart muscle distal to the thrombus becomes

softened, infiltrated with leukocytes, a mural thrombus forms over the site of myomalacia cordis, and a focal area of transitory pericarditis can sometimes be detected clinically. In time this area of dead tissue is organized into an infarct which can be seen as a scar in the wall of the heart. If this process occurs repeatedly and only the smallest branches of the coronaries are thrombosed, a diffuse fibrosis of the myocardium finally results, which can be recognized with the microscope.

The third serious heart affection is streptococcic endocarditis. Recent work by Ulrich and Clawson indicates that sub-acute bacterial endocarditis and rheumatic endocarditis, two diseases formerly considered as separate clinical entities, are different clinical types of the same disease which is caused by the streptococcus viridans. The severe form, sub-acute streptococcic endocarditis, is usually associated with persistent heart-pain, and emboli may be swept from either valvular or mural thrombi. Late manifestations of the milder form of this disease, rheumatic endocarditis, result from pathologic changes in the heart, consisting of fibrosis and contraction of the mitral cusps, with shortening of the chordae tendineae, and areas of circumscribed fibrosis in the heart muscle, or from chronic adhesive pericarditis.

There is no type of pain which is invariably characteristic of any of the heart pathology outlined in this paper, and the finding at autopsy will often humble the clinician who tries to diagnose the anatomic condition of the heart by the symptom, pain.

611 *Medical Arts Building.*

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PLEURISY.*

By MARSHALL J. PAYNE, M. D., Staunton, Va.

Pleurisy, or pleuritis, is an inflammation of the pleura or pleural sac. It may be localized or generalized, and is dependent upon some infecting organism. Pleurisy is a definite pathological entity. It is a symptom complex which appears as an intercurrent phenomena associated with, or the result of, some definite infection. The primary infection in question

has a causative and positive relation to the pleurisy, though the infection may be overlooked or undiscoverable.

Infection of the pleural sac, like that of all other closed or serous body cavities, is possible only when pathogenic bacteria reach the pleural cavity through the lymph or blood stream, by trauma, as through an open wound involving the thoracic wall, by direct extension from a neighboring organ which at the time is the seat of an infection, by perforation of some viscus into the pleural cavity, the escape of the previously infected contents of the viscus carrying the infecting organism, by some specific disease as, for example, syphilis, or by metastasis of malignant disease, by typhoid fever or some specific defined infection, as septic infection, or pyemia. Idiopathic pleurisy is an impossibility.

Pleurisy may be associated with organic vascular disease, as myocarditis, arteriosclerosis and Bright's, and is due to the altered condition of the blood vessels and the circulating fluid.

I shall not further review the causes. I only desire to emphasize the relationship existing between foci of infections and pleural inflammation. The occurrence of pleurisy in typhoid fever is not to be forgotten. In a series of cases at Munich, 8 per cent of cases dying were found at autopsy to have had pleurisy.

A primary pleurisy is a symptom complex which interrupts a period of apparent or supposed health, and calls for a searching examination in order that the cause may be fully discovered and, if possible, removed. By primary pleurisy is meant an inflammation of the pleura in which an associated or intercurrent process upon which the pleurisy may rest is not or cannot be discovered. The very nature of the thing, therefore, makes a primary pleurisy very rare, certainly if a well ordered study of the case is made.

Secondary pleurisy is well understood and calls for no further explanation of the term than to illustrate, as for example, tonsillitis or pulmonary tuberculosis, originating the inflammation of the pleura.

In times past, and even now in the minds of many clinicians, a prejudice occurs, to-wit, that all pleurisies are tubercular. This prejudice to my mind is unwarranted and is due to the fact that the cause is not always diligently sought. This has a very important bearing on

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the after life of the applicant, and on industrial relations and demands that all cases shall be carefully studied in order that the cause, or the focus of the infection, may be discovered.

From the clinical standpoint of physical signs, pleurisy may be set out or defined as dry, or non-exudative, including the rheumatic forms, and the exudative with effusion and, at times, gases, the latter including the suppurative type, hemorrhagic types, and the effusion due to passive circulation or failing circulation. It is well known indeed that practically all lingering diseases are attended by a collection of more or less fluid in the closed body cavities, notably the pericardial, the pleural and peritoneal cavities.

From the standpoint of etiology, the following plan is convenient, when the associated disease is known:

Rheumatic, attended by acute joint symptoms.

Tuberculous, very frequent, recovery at times surprising.

Purulent, dependent upon streptococci, staphylococci, facultative parasites, pneumococci, typhosus and colon bacilli.

Traumatic, stab, gun shot, compound fracture rib, etc.

Specific, syphilitic.

The character of exudate may be serous, purulent, hemorrhagic and may be mixed with gases.

Symptomatology: Period of incubation is indefinite as in cases of latency. In cases of trauma it may develop after twelve hours. The prodromal symptoms are absent.

Mode of onset and course of disease: It rarely begins with a chill or chilly feeling. Generally there is pain with a stitch in the side. This pain is sharp and decidedly dependent upon respiration. During the following days—seldom extending over a week—the symptoms are those of acute infection. Slight fever, headache, anorexia, constipation. The local stitch pain and friction slowly disappear, although a painless rub may be present. The patient slowly regains health; the convalescence is usually slow.

The *objective symptoms* are rapid, shallow breath, pain, the patient holds his affected side immobile and carefully avoids motion of the trunk; he leans toward the affected side and presses it with his hand. Cough is an early symptom and it is present in 71 per cent of

the cases, according to Lord. It is painful, short, hacking and dry, probably pleural in origin; the sputum is rarely tinged with blood; the temperature is rarely elevated but may reach 102 to 103. The pulse is in proportion to the temperature and ranges about 100 per minute.

Subjective symptoms: Chilly feelings are rarely present; pain in the side as a stitch is common. The character of the pain is short and stabbing.

On inspection there is lack of symmetry, disproportions of measurements, with bulging of affected side, bulging of intercostal spaces, and in case adhesions are present pulling inwards of the intercostal space on inspiration may be noted.

There are diminished or absent respiratory movements of affected side.

Percussion dullness may be noted with descent of diaphragm, and on right side of descent of liver. Have patient breathe as percussion is made.

Traube's space is obliterated in the left side or with effusion pleurisy.

Skoda's resonance is heard below the clavicle in medium sized effusion.

Palpation shows an absence of vocal fremitus, and displacement of heart to the left in right side and to the right in left side pleurisy.

The evidences obtained by auscultation are the most significant. There may be noted friction sound and pleural rub, at the onset and in stage of resolution, though I have not observed the latter personally.

Diminution or absence of vesicular breath sounds, pleuritic murmur, egophony, and whispering pectoriloquy are found by careful auscultation.

Fluoroscopy shows a depression and immobility of the diaphragm, and displacements of viscera. X-ray examination should not be neglected, as it will show opacity of the affected area.

An exploratory puncture may be made to discover if fluid is present. The determination of the presence of pleurisy, and the presence or absence of fluid is not sufficient, however, for the study of the case should properly include a determination of the original process, or the underlying cause, and the focus or point of entrance of the infection. For this reason, a careful study of the case is essential.

The physical and X-ray findings should be

carefully correlated and the laboratory examination should be thoroughly and exhaustively done. Wassermann, Widal and blood culture should always be included.

The most important laboratory examination, perhaps, is the sputum, for the purpose of discovering the specific organisms. The test for albumin in the sputa is characteristic and diagnostic for tuberculosis, even in the absence of the bacillus of tuberculosis, so this should be included.

The diagnosis should not rest with the discovery of the pleuritic condition but must be extended to discover the cause.

The following cases are cited to illustrate the points in question:

Mrs. Wm. J. P. *Past history:* illness in childhood and at time of marriage strongly suggested tubercular infection.

First seen in the Fall of 1924. Diagnosis at first visit—activity right apex, confirmed by X-ray, and patient was advised to take sanatorium treatment. Entered sanatorium, and suffered a grippal infection and, from that time on, the progress has been steadily downwards. Left lung clear, reports and X-ray from sanatorium. Was advised to have collapse of lung, right side, by rib resection, but declined. Quickly following this advice there developed a left sided, acute, violent, pleurisy with considerable shock, apnea, and prostration.

The left chest was aspirated and 1200 c.c. serous fluid was withdrawn. Relief was prompt and progress satisfactory. There was no reaccumulation of fluid and she was removed to her home. Since return home she has improved. No recurrence of pleurisy. Numerous attempts were made in this case to compress right lung by gas, all of which failed on account of pleural adhesions.

It is interesting to consider the actual cause of the pleurisy of the left side, and to note that it apparently has subsided, and that no recurrence has occurred to date. The right lung is functioning perhaps about 10 per cent.

The only interesting feature in this case is the apparent, quick and continued abatement of a severe pleurisy in the presence of a known severe and well advanced pulmonary tuberculosis. I feel warranted in saying that the improvement has been brought about by the administration of para-thormone hypodermi-

cally. I would have you contrast this clinical picture with the following case:

Negro, age twenty, married, whose family history was unimportant and whose past history was not remarkable except for influenza in 1918 followed by pneumonia which he thought was in the left side. He was taken sick July 10, 1925. He complained of headache and malaise, but continued up until July 15th when he went to bed with temperature of 104.2°. His temperature remained elevated until July 25th when it began to subside by lysis. About August 14th, more than a month after the onset of his disease, he had a chill and developed dyspnea and a very slight cough. The cough was never pronounced and the expectoration was scanty or absent. August 22nd, when he was admitted to the hospital, and during his stay there of eleven days, his temperature was normal or subnormal in the morning, and from 100.5° to 102° in the afternoon.

Physical examination: In the early part of his disease, he revealed no abnormality except rapid wasting of the tissues, sordes of the tongue, and elevation of temperature. Rose spots were never seen, and the spleen was not palpable. The lungs were clear. After his chill, flatness and bronchial breath sounds appeared over the left lower lobe, patchy in outline, and a diagnosis of bronchial pneumonia was made. Several days later the heart sounds were not heard over the precordium, but were distinctly heard to the right of the sternum.

Upon admission to the hospital, August 22nd, the right border of the heart was displaced an inch to the right of the sternum. The heart-rate was rapid, and the sounds were not heard in the natural area but were heard well to the right of the sternum and along the sternal border. There was flatness over the left lower chest anteriorly and posteriorly, with absence of breath sounds. At the angle of the scapula, increased breath and voice sounds and tubular breathing were heard, also a few rales after cough were heard over this area. A roentgenogram of the chest at this time showed the heart displaced slightly to the right, and cloudiness over the entire left chest suggestive of fluid. Paracentesis was done the following day, about 1200 c.c. of bloody fluid being removed. The next day the heart sounds were heard to the left of the sternum and pericardial friction rub appeared at the base, disappearing in twenty-four hours.

Laboratory findings: Widal's and blood cultures July 28th, August 4th, and August 27th were negative.

Urinalysis, August 31st was negative save for a decided trace of albumin.

Wassermann August 27th was 3 plus.

Progress: The patient was discharged from the hospital September 1st and put on potassium iodid and bichloride of mercury. When last seen September 11th, the heart was still displaced slightly to the right of the sternum. Breath and voice sounds were absent at the left base, and the area of unresolved pneumonia at the angle of the scapula was still present. There was improvement of breath and voice sounds posteriorly over the left lower lobe, with the exception of the base, and heart sounds were heard two inches to the left of the sternum.

H. R. Case No. 10332 admitted June, 1925. He was sick eight weeks before admission. Onset of illness gradual, prodromal symptoms, headache, malaise, fever, weak, pain in stomach. Had taken some patent medicine.

Has had measles, scarlet fever, typhoid fever, and, when child of seven, rheumatism. No injuries, no surgical operation, no alcoholism, no venereal infection.

Family History: Father dead, age and cause unknown; mother forty-two living and well; one brother, living and well; no sisters; no hereditary disease.

The clinical course of the preceding disease was that of typhoid fever, the temperature, pulse, respiration, curve, tongue and abdominal distention, all indicating enteric fever.

A careful examination of the chest at the first visit, eight weeks prior and several subsequent times before admission, failed to disclose evidences of chest involvement. A few coarse moist rales were present.

There was pain in the right upper abdomen, two weeks prior to admission, with recurrence one week later. This was attended by pleural rub, and evidences of fluid in the chest. X-ray examination was made June 4th, and report was as follows:

Left chest negative, large amount of fluid in right, compressing all lobes of the right lung. The heart is pushed to the left. The density of the fluid indicates fluid is serous or beginning seropurulent.

Urine showed small amount of albumin, 1 hyaline and granular cast to field.

Blood R. B. C. 3,744,000, W. B. C. 6,000. Hbg. 60, Neut. 80, small mononuclears 20. sputum showed usual pneumococcus and staphylococcus, but was negative for tuberculosis. Skin test O. T. Negative.

Fluid from chest negative for tuberculosis and negative for typhoid agglutination.

Wassermann negative. Widal and blood culture for typhoid negative.

June 4, 1925, the chest was aspirated on right side, sixth interspace anterior to the axillary line and 1250 c.c. of fluid withdrawn.

Throughout the case did not cough.

Five aspirations showed no infection; total fluid withdrawn was 8615 c.c.

Guinea pig injected. Report was negative for tuberculosis.

Fluid was always clear, serous, no flakes, each specimen was tested for bacterial contents; no growth.

Air was deliberately injected into the pleural sac at fourth and fifth aspirations.

Physical Examination: September 17, 1925. Air enters to right base, no rales, but evidence of thickened plura, and evidences of restricted movements of chest of the right side.

Impression: Clinical typhoid fever, complicated by exudative pleurisy. This opinion is sustained by absence of response to all reasonable tests in the presence of a true clinical typhoid, even though negative Widal and negative blood culture were found.

Convalescence: Patient is gaining weight and strength, and appears well. Recovery was entirely too rapid for tuberculosis. The heart is still a trifle fast.

The treatment of pleurisy is well worked out and should seek to:

1. Remove the cause, if possible.
2. Relieve pain; morphia may be required, in early stages. Strapping of chest is advisable.
3. Meet the indications in the case, as may be required.
4. Careful observation for presence of fluid in chest, and prompt removal of fluid, not waiting for the fluid to collect in enormous amounts. This is especially important whenever purulent exudate is present.
5. Hypertonic sugar solution, *i. e.*, glucose solution intravenously and injection of saturated solution of ordinary white sugar intramuscularly daily are advisable..

6. Aspiration or drainage of pleural sac, in presence of exudate.

7. Purposeful injection into the pleural cavity of air or nitrogen gas. I am sure I have seen the admission of air benefit the process of pleurisy.

Analyses, Selections, Etc.

Physical Defects as Revealed by Periodic Health Examinations.

In the *American Journal of Medical Sciences*, for October, 1925, there appears an article by Louis I. Dublin, Eugene Lyman Fisk and Edwin W. Kopf, of New York, under the above caption.

This study describes the principal findings in the examination of 16,662 white males, policy-holders of the Metropolitan Life Insurance Company, examined by the Life Extension Institute in 1921. The group examined represented the average type of insurance policy-holder. The examinations were carried out by a selected group of physicians corresponding closely to the higher type of general practitioner. The examinations were voluntary health examinations and not for the purpose of obtaining insurance. The age incidence varied from below 25 to over 55. Occupation was not determined in all cases, most of them being clerical, mercantile or executive. From the above mentioned facts it is reasonable to conclude, that the findings would be representative of what one would find in adult males in the usual run of general practice.

TABLE No. I—Errors in Hygiene by Age Groups.

	All Ages	35 to 44	45 to 54	55 & Over
Too high protein diet.....	37.6	36.9	38.	34.
Too little water consumed....	36.9	37.7	38.2	35.9
Too much tea and coffee.....	40.7	42.3	44.6	47.8
Excessive alcohol.....	.7	.6	1.	.9
Excessive tobacco.....	33.3	33.2	32.	25.8
Hours of work too long.....	26.4	29.2	28.6	24.6
Lack of exercise.....	60.8	63.9	58.2	42.8

Table No. I shows that 60.8 per cent of the group took insufficient exercise. Over 37 per cent were taking too much protein. The same proportion consumed too little water and over 40 per cent partook of an excess of tea and coffee. As a whole this table shows that a very high percentage of those examined were committing serious errors in hygiene.

TABLE No. II—Percentage of Persons showing Physical impairment.

	Age Group			
	All Ages	35 to 44	45 to 54	55 & Over
Over 20% underweight.....	2.4	2.3	1.5	2.1
Over 20% overweight.....	12.9	14.4	18.9	19.8
Defective vision uncorrected	29.5	30.	29.4	31.8
Enlarged septic or buried tonsils.....	26.2	25.6	17.1	13.
Heavy dentistry.....	41.6	44.2	43.5	38.8
Mitral Stenosis.....	.2	.1	.2	.4
Aortic Regurgitation.....			.1	.1
Pulse above 90.....	8.3	8.2	8.6	6.7
Slight arterial thickening.....	14.3	14.9	18.2	24.
Blood Pressure, 20-40 mm. Hg. above normal.....	6.2	4.9	8.3	16.4
Constipation.....	39.7	40.4	40.1	40.3
Hemorrhoids.....	12.3	12.8	17.7	16.3
Headaches.....	15.4	16.6	13.7	10.
Albumin in urine, slight trace	12.9	12.4	14.2	15.8
Sugar, trace.....	3.6	3.6	4.1	4.2

Table No. II brings to light certain facts which are not generally appreciated by the medical profession as a whole. Of all ages one-eighth were more than 20 lbs. overweight; nearly 30 per cent had defective vision uncorrected; 26.2 per cent had buried or septic tonsils; 14.3 per cent slight arterial thickening; nearly 40 per cent with constipation; 12.3 per cent hemorrhoids; 15.4 per cent with headaches; 12.9 per cent with slight trace of albumin, and 3.6 per cent with slight trace of sugar. Nearly 20 per cent of the total group had defective posture and over 16 per cent had flat feet.

A special study was made of the overweight group and comparison made with those of normal weight.

TABLE No. III—Percentage Age Grouping of Normal and 20% Overweight.

Age Division, Years	Normal 5% Underweight to 5% Overweight	Over 20% Overweight
All ages.....	25.8	12.9
Under 25.....	31.7	4.9
25 to 34.....	27.3	8.1
35 to 44.....	25.1	14.1
45 to 54.....	23.1	18.9
55 and over....	23.9	19.8

Table III shows the age incidence of the normal and overweight groups. It illustrates the well known fact that overweight is more common with advancing years. In those under 25 years, 31.7 per cent are of normal

weight; over 55 years, 23.9 per cent normal. Under the age of 25 years, only 4.9 per cent are over 20 per cent overweight, whereas at the age of 55 years and over the incidence runs up to 19.8 per cent.

ably the number of cardiac and renal involvements, which today follow in the train of excessive alimentation."

Rose is quoted as having observed "an almost uniform and, in the majority of cases,

TABLE No. IV—Comparison of overweight and normal weight groups, with respect to blood vessels and blood pressure.

Impairments in Weight Classes	All Ages	Under 25	25-34	35-44	45-54	55 & Over
OVERWEIGHT GROUPS						
Slight arterial thickening.....	14.1		8.4	15.	16.3	20.7
Moderate arterial thickening.....	3.8	2.4	2.5	2.2	4.6	11.1
Blood pressure, 20-40 mm. above.....	12.8	5.1	10.1	9.8	17.9	20.3
NORMAL WEIGHT GROUPS						
Slight arterial thickening.....	14.5	6.6	11.8	15.2	18.7	24.4
Moderate arterial thickening.....	4.6	2.6	2.9	3.8	7.3	14.5
Blood pressure, 20-40 mm. above.....	5.2	5.6	4.3	3.4	6.8	17.3

A study of Table IV shows that blood pressure 20-40 mm. Hg. above normal is more common (12.8 per cent) in the overweight group than in the group of normal weights (5.2 per cent). Arterial changes on the contrary are higher in the normal group than in the overweights. The authors do not attempt to explain this but suggest that difficulty in palpating the artery in the overweight group may have something to do with it.

"It follows therefore, that the detection of overweight in early life and the correction of this defect through dietary and other hygienic counsel would materially reduce the number of persons in the general population having hypertension. This would consequently postpone serious embarrassment of the circulatory apparatus and would eventually effect favor-

satisfactory reduction of high blood pressure during the process of weight reduction through dietary control. Thereby the accompanying symptoms, notably shortness of breath, palpitation, œdema of lower extremities, albuminuria (due to congestion of kidneys), headache, distention with gas, difficult locomotion and painful feet are quickly relieved."

Table V shows definitely that overweight impairs the urinary function, especially in advanced years.

Circulatory System: In the examination of the heart and arteries the most important facts noted were: organic murmurs present in 1 per cent, enlargement of heart 2.7 per cent, rapid pulse (above 90) in 8.3 per cent, slow pulse (below 58) in 1.4 per cent and abnormal blood vessel in 22.6 per cent.

TABLE No. V—Percentage of Normal and Overweight Persons, showing Urinary Impairment by Age Groups.

Impairments in Weight Classes	All Ages	Under 25	25-34	35-44	45-54	55 & Over
OVERWEIGHT GROUPS						
Albumin, slight trace.....	14.3	9.8	12.9	13.6	14.8	19.5
Albumin, definite trace.....	3.8		3.8	2.6	3.1	11.2
Sugar, trace.....	4.6	2.4	2.9	4.7	6.1	4.9
Pus.....	3.3		3.1	3.3	3.3	3.9
Casts, granular and epithelial.....	.9		.9	.6	1.3	1.0
Casts, hyaline.....	6.3	4.9	4.9	5.3	7.2	10.7
NORMAL WEIGHT GROUPS						
Albumin, slight.....	12.4	12.3	11.9	11.9	13.9	14.1
Albumin, definite trace.....	2.1	3.2	1.9	1.7	2.0	4.4
Sugar, trace.....	3.1	4.8	3.0	2.5	3.5	3.6
Pus.....	2.8	1.6	2.5	2.5	3.5	4.8
Casts, granular or epithelial.....	.4		.2	.3	.9	.8
Casts, hyaline.....	3.5	4.0	2.2	3.3	5.1	6.8

TABLE No. VI—Study of 1,021 Cases of High Blood Pressure, compared with 13,308 Cases of Normal Blood Pressure.

Physical defects and influential living habits.	Normal Blood Pressure 13,308 white males. (20 above-15 below).	High Blood Pressure in 1021 white males. (20-40 mm.) above standard.
High protein diet.....	38.4	38.5
Excess of tea and coffee..	40.8	44.3
Alcohol (moderate).....	6.9	8.8
Alcohol (excess).....	.6	1.1
Tobacco, temperate.....	12.1	13.8
Tobacco, excess.....	33.1	31.
Functional heart signs....	5.6	9.6
Valvular defects.....	.8	2.4
Hypertrophy.....	2.2	7.8
Rapid pulse (over 90)....	7.7	18.7
Arterial changes.....	17.8	35.2
Tonsils (defective).....	26.5	26.9
Caries of teeth.....	8.1	9.7
Constipation.....	39.2	38.4
Albuminaria.....	14.7	18.1
Pyuria.....	2.7	3.5
Glycosuria.....	3.8	5.0
Overweight, 10-15%.....	9.3	11.0
Overweight, 15-20%.....	7.5	9.5
Overweight, over 20%....	12.6	25.5

Table VI, which is a study of the relation of certain hygienic errors and physical defects to blood pressure readings, is most illuminating. Some of the inferences conveyed are at least contrary to the fixed opinion of a large percentage of practicing physicians. High protein diet has long been considered as one of the chief causes of high blood pressure. The figures from Table VI would tend to show that this is not the case. Recent research along the same lines gives similar conclusions. (Strouse and Mosenthal).

In the high blood pressure group, 44.3 per cent are given as using an excess of tea and coffee as against 40.8 per cent in the normal group. Just what importance to give this is hard to say. An excess of tea or coffee depends not only on the number of cups consumed per diem but also on the strength of the beverage.

Tobacco: The high pressure group shows 31 per cent using tobacco in excess as against 33.1 per cent of normal blood pressure group. This is in accordance with previous studies and shows us that tobacco in excess, if anything, tends to lower the blood pressure.

Functional Heart Signs: Functional heart signs, such as "sinus arrhythmia," "extrasystole," so-called "haemic murmur," have in the past generally been considered of no signifi-

cance. The high blood pressure group shows an incidence of 9.6 per cent having functional heart signs as compared with 5.6 in the normal pressure group. This difference of 4 per cent is at least worthy of note.

Rapid Pulse: The high pressure group showed 18.7 per cent with rapid pulse (over 90). Normal pressure group 7.7 per cent. This marked difference, 11 per cent, corroborates past observation of the common incidence of rapid pulse with high blood pressure.

Tonsils: There was no appreciable difference in the percentages of the two groups having infected tonsils. This fact is important. Infected tonsils have had their day, as did the appendix, infected teeth and other various conditions, of being blamed for numerous ailments. This study would tend to show that they are not a big factor in the production of high blood pressure.

Teeth: Amongst the defects of the teeth, "recession" and "pyorrhoea" show an appreciable higher percentage amongst the high pressure group.

Constipation: Since Lane's work on resection of the colon, constipation has come into prominence as a supposed cause for many physical impairments. The figures given in this study would make us at least hesitate before quoting it as a cause of high blood pressure.

Overweight: The case against overweight has been definitely proven. In all three classifications, i. e., 10-15 per cent group, 15-20 per cent, and over 20 per cent overweight, there is an appreciable higher percentage in the high pressure group than in the normal. The difference in the "over 20 per cent overweight" group is most marked, 12.9 per cent. These figures should be particularly borne in mind. Weight reduction today is being done chiefly by sanatoria or special institutions for that purpose. The amount that is done by the general practitioner is very small. In view of the importance of weight reduction, it is high time that the profession at large took this matter up in earnest.

Respiratory System: Examination of the respiratory system showed a surprisingly low incidence of lung conditions. Incipient tuberculosis showed 4 per cent. Advanced pulmonary tuberculosis shows only six cases in the series. The upper respiratory tract showed a high percentage of defects. Tonsils enlarged,

septic or buried, showed an incidence of 26.2 per cent.

Digestive System: Fifty-five per cent had teeth defects. Forty-one per cent had had extensive dental work done. Fifty-four per cent had some form of stomach or abdominal trouble, and 39.7 per cent gave a history of constipation.

Genito-Urinary System: A summary of the findings shows that, in 12.9 per cent of cases, a slight trace of albumin was present, in 2.4 per cent marked amounts. In both the overweight and high blood pressure groups the percentage of cases showing either albumin or sugar was higher than the normal. History of gonorrhea was given in 6.3 per cent of the cases. Rheumatism, gout, heart murmurs, heart enlargement, albumin and pus in the urine, were much more common in those giving history of previous gonorrhea.

There was nothing of special interest brought to light regarding the nervous system.

Endocrine System: Disturbances of internal secretions were found in 2.3 per cent of cases. Enlarged thyroids in 2.1 per cent.

Miscellaneous: Frequent headache was reported in 15.4 per cent of cases examined, defective vision in 54.9 per cent, and defective hearing in 15.4 per cent. About 9 per cent of the total group were in the habit of using patent medicines and over 17 per cent suffered from frequent colds.

CONCLUSIONS.

This study gives us a clear conception of the enormous amount of latent or unrecognized physical impairments which are harboured by the adult male population of an average community.

The part which attempts to correlate faulty hygiene and certain habits with high blood pressure and impaired urinary function is most unique and interesting. It should at least teach us to base our opinions on proven scientific facts rather than on hearsay and rumor. Further study of this nature will undoubtedly bring forth new light on the etiology of chronic diseases. The early stages of most chronic diseases are accompanied by no alarming symptoms and only by periodic health examinations will these conditions be discovered.

The facts shown in this study should be sufficient to awaken an interest in preventive medicine in adults by the profession as a whole.

The medical journals are at present advocating the adoption of periodic health examinations as part of a physician's duty. There is no doubt as to their merit. Let Virginia lead in this forward movement for better health.

H. G. GRANT, M. D.,
*Bureau of Epidemiology,
State Board of Health.*

The Significance and Prevention of Blindness Due to Intranasal Disease.*

Nasal accessory sinus disease is responsible for defective vision and blindness more often than is supposed, according to M. J. Gottlieb, in the *Laryngoscope* for November, 1925. Because of the anatomical relationship existing—the commissure often directly over the sphenoid and the optic nerve as it goes forward being in intimate contact with the ethmoid for about half its length—infection in these two sinuses is often the etiological factor in cases of retrobulbar optic neuritis.

The optic canals vary in shape and size in the same and in different individuals—the average normal diameter being 5.35 mm. and in twenty-five cases of this trouble it was 4.68 mm. The cases with a canal of 4 mm. or less require an immediate ventilation, those of 4.5 mm. allow more time for study and those of 5 mm. or over usually recover from an acute attack.

The microscopical findings are a functionless over-growth of supporting tissues. That is also found in cases with no optic nerve involvement: and it is possible that this predisposes and that an infection excites an edema which compresses the nerve in its unyielding canal. Even in cases with frank pus exuding, the findings were fibrosis and cell infiltration, and microscopical study does not furnish a reliable source of information.

X-rays are of no value in these cases and the nasal mucosa and turbinates may appear to be normal. In the cases with negative findings after all other means have failed these sinuses should be opened and as time is precious, one is justified in doing so without further investigation.

In acute cases prompt recovery follows the removal of the cause and in the chronic cases recovery is slower and less certain. In these cases the middle turbinate should always be

*Abstract from Current Literature on Eye, Ear, Nose and Throat Diseases, read at the meeting of the Richmond Ophthalmological and Oto-Laryngological Society, December 15, 1925.

sacrificed and because of the impossibility of opening all ethmoid cells a guarded prognosis should be the rule.

In this connection I might mention that suction or the use of negative pressure in the nose in nasal accessory sinus infection is being employed on an increasing scale and the reports on its use are very favorable. In many acute and subacute cases its use has made operation unnecessary and it is also an important factor in the treatment of chronic cases. This has been our experience in a large number of cases.

Our knowledge of glaucoma has increased very little in the last fifty years and we are still in the dark as to the etiological factor or factors and as to which type of operation to employ in any given case. It is still a hard matter to decide just when an operation is needed, but it is well known that the congestive type always requires it. And I believe that in the majority of cases the process, in spite of operative work, goes on and the inevitable result, blindness, ensues. Iridectomy is still the most popular operation. Many of the non-congestive cases do well under miotic treatment and some of them retain good vision for many years.

NEILSON H. TURNER.

Proceedings of Societies

The Wise County Medical Society,

At its annual meeting in Norton, February 24th, elected Dr. W. B. Barham, of Big Stone Gap, president, and re-elected Dr. C. B. Bowyer, Stonega, secretary-treasurer.

The Elizabeth City County Medical Society

Held a re-organization meeting in January at which time Dr. J. Wilton Hope, Hampton, was elected president, and Dr. Geo. W. McAllister, also of Hampton, secretary. It was decided to hold meetings on the first and third Mondays.

The Giles County Medical Society,

After being inactive since 1918, has re-organized and will hold meetings on the last Monday in each month. Dr. J. W. Miller, Pembroke, was elected president; Dr. W. D. Woolwine, Pearisburg, vice-president; and Dr. W. C. Caudill, Pearisburg, secretary-treasurer.

The Albemarle County Medical Society,

At its annual meeting in January, elected Dr. T. H. Daniel, Charlottesville, president; Dr. W. E. Bray, University, vice-president; and re-elected Dr. F. C. McCue, Charlottesville, secretary-treasurer. At this meeting, Dr. T. R. Pratt, of Blue Ridge Sanatorium, Charlottesville, was elected a member.

The Augusta County Medical Association

Held its regular tri-monthly meeting in Staunton, on February 3rd, at which time interesting papers were presented by Drs. C. W. Putney, A. Hume Sprinkel, and Alex. F. Robertson, all of Staunton. Dr. J. L. Alexander, Staunton, is president, and Dr. H. G. Middlekauff, Weyers Cave, secretary of the Association.

There was a great deal of favorable discussion of the paper by Dr. Robertson, on the subject of "Periodic Health Examinations," and much interest was manifested in the subject.

The Lynchburg and Campbell County Medical Society,

At its annual meeting, elected Dr. W. S. Ferguson president; Dr. A. W. Terrell, vice-president; and re-elected Dr. F. Musgrave Howell, secretary-treasurer. All officers are of Lynchburg.

The Truth About Medicine

In addition to the articles enumerated in our letter of December 26, 1925, the following have been accepted:

Swan-Myers Company

Bermuda Grass Concentrated Pollen Extract—Swan-Myers; Costal Sagebrush Concentrated Pollen Extract—Swan-Myers; Johnson Grass Concentrated Pollen Extract—Swan-Myers; Red-Root Pigweed Concentrated Pollen Extract—Swan-Myers; Sunflower Concentrated Pollen Extract—Swan-Myers; Sweet Vernal Grass Concentrated Pollen Extract—Swan-Myers.

NEW AND NONOFFICIAL REMEDIES

Special Pertussis Vaccine.—A pertussis bacillus vaccine (New and Nonofficial Remedies, 1925, p. 353) marketed in 5 c.c. vials. Cutter Laboratory, Berkeley, Cal.

Coco-Quinine.—Each 100 c.c. contains quinine sulphate 2.19 Gm. (10 grains per fluid ounce), suspended in a syrup flavored with chocolate, yerba santa and vanillin, and containing sodium benzoate, 0.18 Gm. per 100 c.c. and alcohol, 4 per cent. Eli Lilly & Co., Indianapolis.

Concentrated Culture of *Bacillus Acidophilus*.—P. D. L.—A milk culture of *Bacillus acidophilus* supplied in vials containing 8 c.c. It contains not less than 300 million viable organisms (*B. acidophilus*) per c.c. at the time of sale. For a discussion of

actions and uses, see Lactic Acid-Producing Organisms and Preparations (New and Nonofficial Remedies, 1925, p. 191). Physicians Diagnostic Laboratories, Berkeley, Cal. (Jour. A. M. A., Jan. 2, 1926, p. 37).

Scarlet Fever Streptococcus Antitoxin Concentrated.—A scarlet fever streptococcus antitoxin (Jour. A. M. A., May 2, 1925, p. 1,338) prepared by the method of Drs. Dick by license of the Scarlet Fever Committee, Inc. It is marketed in packages of one syringe containing 6 c.c. (prophylactic dose) and in packages of one syringe containing 12 c.c. (therapeutic dose). E. R. Squibb & Sons, New York.

Scarlet Fever Immunity Test.—The toxin of the hemolytic streptococcus of scarlet fever is used to determine those persons who are susceptible to scarlet fever. The toxin is first standardized on human beings and diluted so that 0.1 c.c. represents a skin test dose. The test dose is injected intracutaneously on the forearm and the degree of susceptibility is determined at the end of from 22 to 24 hours. The toxin is used also for active immunization. For this purpose it is injected subcutaneously at weekly intervals; from three to five doses of increasing strength are given.

Scarlet Fever Streptococcus Toxin for Dick Test—Squibb.—It is prepared by the method of Drs. Dick by license of the Scarlet Fever Committee, Inc. Marketed in packages of one vial containing sufficient toxin for ten tests; in packages of one vial containing sufficient toxin for 100 tests. E. R. Squibb & Sons, New York.

Scarlet Fever Streptococcus Toxin—Squibb.—It is prepared by the method of Drs. Dick by license of the Scarlet Fever Committee, Inc. Marketed in packages of five vials of toxin containing increasing doses; in packages of fifty vials, representing ten immunizations. E. R. Squibb & Sons, New York.

Sulpharsphenamine—Mallinckrodt.—A brand of sulpharsphenamine (New and Nonofficial Remedies, 1925, p. 55). It is marketed in ampules containing, respectively, 0.1, 0.2, 0.3, 0.4, 0.5 and 0.6 Gm. Mallinckrodt Chemical Works, St. Louis. (Jour. A. M. A., Jan. 16, 1926, 199.)

Pollen Extracts—Arlco.—In addition to the products listed in New and Nonofficial Remedies, 1925, p. 288, the following have been accepted: Acacia (Scap.) Pollen Extract—Arlco; Alfalfa Pollen Extract—Arlco; Ash Pollen Extract—Arlco; Box Elder Pollen Extract—Arlco; Burning Bush Pollen Extract—Arlco; California Walnut (Black) Pollen Extract—Arlco; Cocklebur Pollen Extract—Arlco; Cosmos Pollen Extract—Arlco; Fleabane (Common) Pollen Extract—Arlco; Goose Foot Pollen Extract—Arlco; Hemp Pollen Extract—Arlco; Indian Rice Pollen Extract—Arlco; Indian Wormwood Pollen Extract—Arlco; Live Oak Pollen Extract—Arlco; Marsh Elder Pollen Extract—Arlco; Meadow Fescue Pollen Extract—Arlco; Mugwort Pollen Extract—Arlco; Oat Grass Pollen Extract—Arlco; Olive Pollen Extract—Arlco; Pine Pollen Extract—Arlco; Plantain Pollen Extract—Arlco; Prairie Sage Pollen Extract—Arlco; Poplar Pollen Extract—Arlco; Privet Pollen Extract—Arlco; Red Fescue Pollen Extract—Arlco; Rye Grass Pollen Extract—Arlco; Slender Ragweed Pollen Extract—Arlco; Sweet Clover Pollen Extract—Arlco; Sweet Vernal Grass Pollen Extract—Arlco; Sycamore Pollen Extract—Arlco; Thistle Pollen Extract—Arlco; Velvet Grass Pollen Extract—Arlco; Western Cottonwood Pollen Extract—Arlco; Western Ragweed (Giant) Pollen Extract—Arlco; Winter Fat Pollen Extract—Arlco; Yellow Daisy Pollen Extract—Arlco. Arlington Chemical Co., Yonkers, N. Y.

Pollen Extracts—Cutter.—Liquids obtained by extracting the dried pollen of plants.—For a discussion of the actions and uses, see Allergic Protein Preparations (New and Nonofficial Remedies, 1925, p. 278). Pollen extracts—Cutter are used both for diagnosis and treatment. They are marketed in capillary tubes and in packages of five vials representing graduated concentrations. The following preparations have been accepted: Annual Salt Bush Pollen Extract—Cutter; Arizona Ash Pollen Extract—Cutter; Bermuda Grass Pollen Extract—Cutter; Black Walnut Pollen Extract—Cutter; Canary Grass Pollen Extract—Cutter; Careless Weed Pollen Extract—Cutter; Coast-Sagebrush Pollen Extract—Cutter; Cocklebur Pollen Extract—Cutter; Common Ragweed Pollen Extract—Cutter; Cottonwood Pollen Extract—Cutter; False Ragweed Pollen Extract—Cutter; Giant Ragweed Pollen Extract—Cutter; Johnson Grass Pollen Extract—Cutter; June Grass Pollen Extract—Cutter; Lamb's Quarters Pollen Extract—Cutter; Live Oak Pollen Extract—Cutter; Marsh Elder Pollen Extract—Cutter; Mugwort Pollen Extract—Cutter; Olive Pollen Extract—Cutter; Orchard Grass Pollen Extract—Cutter; Plantain Pollen Extract—Cutter; Rabbit Bush Pollen Extract—Cutter; Red Root Pigweed Pollen Extract—Cutter; Red Top Pollen Extract—Cutter; Russian Thistle Pollen Extract—Cutter; Rye Grass Pollen Extract—Cutter; Sagebrush Pollen Extract—Cutter; Shadscale Pollen Extract—Cutter; Sheep Sorrel Pollen Extract—Cutter; Timothy Pollen Extract—Cutter; Velvet Grass Pollen Extract—Cutter; Western Ragweed Pollen Extract—Cutter; White Oak Pollen Extract—Cutter; Wild Oat Pollen Extract—Cutter; Yellow Dock Pollen Extract—Cutter. Cutter Laboratory, Berkeley, Cal.

Concentrated Pollen Extracts—Swan-Myers. In addition to the products listed in Journal A. M. A., May 30, 1925, p. 1,634, the following have been accepted: Mixed Ragweed Concentrated Pollen Extract—Swan-Myers. Swan-Myers Co., Indianapolis.

Protein Extracts Diagnostic—P. D. & Co.—In addition to the products listed in New and Nonofficial Remedies, 1925, p. 289, the following have been accepted: Aster Pollen Protein Extract Diagnostic—P. D. & Co.; Barnyard Grass Pollen Protein Extract Diagnostic—P. D. & Co.; Bermuda Grass Pollen Protein Extract Diagnostic—P. D. & Co.; Burweed Marsh Elder Pollen Protein Extract Diagnostic—P. D. & Co.; Chestnut Pollen Protein Extract Diagnostic—P. D. & Co.; Cocklebur Pollen Protein Extract Diagnostic—P. D. & Co.; Common Ragweed Pollen Protein Extract Diagnostic—P. D. & Co.; Corn Pollen Protein Extract Diagnostic—P. D. & Co.; Cosmos Pollen Protein Extract Diagnostic—P. D. & Co.; Crab Grass Pollen Protein Extract Diagnostic—P. D. & Co.; Dahlia Pollen Protein Extract Diagnostic—P. D. & Co.; Dandelion Pollen Protein Extract Diagnostic—P. D. & Co.; Halberd-Leaved Oraché Pollen Protein Extract Diagnostic—P. D. & Co.; Giant Ragweed Pollen Protein Extract Diagnostic—P. D. & Co.; Indian Hair Tonic Pollen Protein Extract Diagnostic—P. D. & Co.; Johnson Grass Pollen Protein Extract Diagnostic—P. D. & Co.; June Grass Pollen Protein Extract Diagnostic—P. D. & Co.; Maple Pollen Protein Extract Diagnostic—P. D. & Co.; Marigold Pollen Protein Extract Diagnostic—P. D. & Co.; Orchard Grass Pollen Protein Extract Diagnostic—P. D. & Co.; Plantain Pollen Protein Extract Diagnostic—P. D. & Co.; Prairie Sage Pollen Protein Extract Diagnostic—P. D. & Co.; Rose Pollen Protein Extract Diagnostic—P. D. & Co.; Rough Marsh Elder Pollen Protein Extract Diagnos-

tic—P. D. & Co.; Sage Brush Pollen Protein Extract Diagnostic—P. D. & Co.; Western Ragweed Pollen Protein Extract Diagnostic—P. D. & Co.; Western Water Hemp Pollen Protein Extract Diagnostic—P. D. & Co.; Wheat Pollen Protein Extract Diagnostic—P. D. & Co.; White Clover Pollen Protein Extract Diagnostic—P. D. & Co.; White Goose Foot Pollen Protein Extract Diagnostic—P. D. & Co.; Willow Pollen Protein Extract Diagnostic—P. D. & Co.; Wormwood Sage Pollen Protein Extract Diagnostic—P. D. & Co.; Yarrow Pollen Protein Extract Diagnostic—P. D. & Co.; Yellow Dock Pollen Protein Extract Diagnostic—P. D. & Co. Parke, Davis & Co., Detroit.

Group Protein Extracts Diagnostic—P. D. & Co.—In addition to the products listed in New and Non-official Remedies, 1925, p. 294, the following have been accepted: Protein Extracts Diagnostic—P. D. & Co. Group 28 (Bermuda Grass, Johnson Grass, Orchard Grass, Red Top, Timothy); Protein Extracts Diagnostic—P. D. & Co. Group 29 (Halberd-Leaved Orache, Russian Thistle, Western Water Hemp, White Goose Foot, Yellow Dock); Protein Extract Diagnostic—P. D. & Co. Group 30 (Burweed Marsh Elder, Cocklebur, Common Ragweed, Giant Ragweed, Rough Marsh Elder, Western Ragweed); Protein Extracts Diagnostic—P. D. & Co. Group 31 (Indian Hair Tonic, Mugwort, Prairie Sage, Sage Brush, Wormwood Sage). Parke, Davis & Co., Detroit. (Jour. A. M. A., Jan. 23, 1926, p. 277.)

PROPAGANDA FOR REFORM

The Hoxide Cancer Cure.—There is being exploited from the town of Taylorville, Illinois, a "cancer cure" put out by one Harry M. Hoxsey and sponsored by the Chamber of Commerce of Taylorville. The treatment is a secret one, of course, and is administered by a concern calling itself the Hoxide Institute. The Hoxide Cure is essentially the escarotic treatment with arsenic as the base. Specimens of the stuff examined in the A. M. A. Chemical Laboratory when the Hoxsey outfit was in Chicago, showed the presence of arsenic in large quantities. What happens when the "cure" is used can easily be imagined by physicians. Unfortunately the public has no such knowledge. In the case of some of the patients that were treated in Chicago by the National Research Cancer Institute and Clinic, the arsenic applied to the malignant tissue ate into the blood vessels and the patients bled to death. (Jour. A. M. A., Jan. 2, 1926, p. 55.)

The Anemias Due to Radioactive Substances.—Reports have been published on the dangers of radioactive substances and warn against subtle menaces that represent practically a heretofore unrecognized form of occupational poisoning. These reports bring out that the ingestion of radioactive substances may act as irritants to the adjacent erythroblastic and leukoblastic centers and may produce a severe anemia and stimulate pernicious anemias of the regenerative and aplastic types. The demonstrated cell-destructive potency of radioactive substances and the unsuspected late effects which they may initiate should serve as a vigorous warning to all who promote radioactivity as a therapeutic measure. (Jour. A. M. A., Jan. 9, 1926, p. 121.)

Trepol and Neotrepol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Trepol and Neotrepol, bismuth preparations for use in the treatment of syphilis, marketed by the Anglo-French Drug Co., are not acceptable for New and Nonofficial Remedies. Trepol, offered in the form of ampules claimed to contain basic tartrobismuthate of potassium and sodium, was rejected because the

product does not represent a "tartrobismuthate of potassium and sodium" but is instead substantially a basic bismuth tartrate, and because no adequate tests for the control of its identity and uniformity are furnished. Neotrepol, supplied in the form of ampules containing metallic bismuth in suspension, was rejected because the amount of active ingredient claimed to be contained in the ampules is not in accord with the amount declared to be present. (Jour. A. M. A., Jan. 9, 1925, p. 135.)

Loeser's Intravenous Solution of Calcium Chloride and Loeser's Intravenous Solution of Sodium Thiosulphate.—An explanation.—Some time ago the Council reported that Loeser's Intravenous Solution of Calcium Chloride and Loeser's Intravenous Solution of Sodium Thiosulphate had been found ineligible for New and Nonofficial Remedies. The New York Intravenous Laboratory objected to these reports. It particularly resented that part of the heading of these reports which declared the products "Not Accepted" for New and Nonofficial Remedies, because it did not request consideration of these products. Since the firm expressed the belief that readers of the reports may be led to assume that it had requested the Council to consider these preparations, the Council explains that the firm did not take this step. (Jour. A. M. A., Jan. 16, 1926, p. 217.)

Some More Medical Frauds.—The postal authorities have recently barred a piece of asthma cure quackery and two lost manhood fakes from the use of the mails. The first is the Asthma-Tab Laboratories Inc., of Kansas City, Mo., which exploited a product to the public, shown by the A. M. A. Chemical Laboratory to be essentially potassium iodide and arsenic trioxide. The two lost manhood concerns were Hart & Co. which put out a device called the Perfection Developer and B. & V. S. Manufacturing Co. which exploited the "Burt Vacuum Tube." (Jour. A. M. A., Jan. 16, 1926, p. 218.)

Manola—Hymosa—Phytoline—Succus Cineraria.—"Medical Suggestions" is a pamphlet issued by the Walker Pharmacal Co. and The Manola Co., which apparently are subsidiaries to the Luyties Pharmacal Co., St. Louis. The publication contains articles which are puffs for the products sold by these companies, together with testimonials from physicians who say that they have used them. Manola has been exploited as a "tonic, reconstructive, and tissue builder." It now contains some strychnine and arsenic which takes it out of the class of homeopathic nostrums, but certainly does not justify the promiscuous use which is advocated. Hymosa was found to be essentially a solution of salicylates exploited as a remedy for rheumatism. Phytoline is a preparation of pokeberry juice advertised as a powerful antiflat. Succus Cineraria Maritima (Walker) is recommended for use in cataract by the Walker Chemical Co. which in 1916 pleaded guilty to the charge that the claims for this nostrum were false and fraudulent. (Jour. A. M. A., Jan. 16, 1925, p. 220.)

Vitalait Starter Omitted From N. N. R.—The Council on Pharmacy and Chemistry announces that Vitalait Starter of the Vitalait Laboratory, Newton Center, Mass., has been omitted from New and Nonofficial Remedies because the preparation was used as a means of advertising an unacceptable preparation. (Jour. A. M. A., Jan. 23, 1926, p. 294.)

Streptococcus Vaccine and Mixed Staphylococcus-Acne Vaccine Omitted From N. N. R.—The Council on Pharmacy and Chemistry announces that all streptococcus vaccines and all vaccine mixtures containing staphylococci and acne bacilli have been

omitted from New and Nonofficial Remedies because experience with these preparations has not established the value which it was hoped they possessed and because recognized experts to whom the Council looks for help have concluded that these preparations have no field of usefulness. (Jour. A. M. A., Jan. 23, 1926, p. 294.)

Restriction of the Sale of Barbitol (Veronal).—While no laws have been passed in the U. S. against the sale of barbitol, the New York sanitary code prohibits its sale without a prescription. In *Useful Drugs* it is stated that many cases of poisoning, some fatal, occur from the indiscriminate use of barbitol by the laity. (Jour. A. M. A., Jan. 23, 1926, p. 297.)

Crystalline Insulin.—In a significant address—the sixth annual Pasteur lecture—recently given before the Chicago Institute of Medicine, John J. Abe' made public announcement that he had obtained a crystalline form of insulin. The chemical and medical world will await with great interest further developments, particularly the proof of the identification and chemical constitution of the product. The crystallization of the pure principle "insulin," or a compound of it, may well be considered an outstanding accomplishment in the life of a man already distinguished by his conquests in biochemistry. (Jour. A. M. A., Jan. 30, 1926, p. 350.)

Amosol Declared a Fraud.—The Postoffice Department has denied the use of the mails to the concern known as Strong Laboratories, Liberty, Mo., which was engaged in fraudulent exploitation of a pyorrhea "cure" amosol through the mails. Henry Strong Smith, one of the proprietors, admitted that the preparation he sold as a new, scientific discovery, the result of years of study and research, was in reality what is commercially known as "stock dip." (Jour. A. M. A., Jan. 30, 1926, p. 366.)

Burnsides Purifico.—Purifico comes in the form of three liquids; "Purifico No. 1," in addition to 10 per cent alcohol with sugar and a small amount of glycerin, contains potassium iodide, cinchona alkaloids, piperine and probably senna. "Purifico No. 2" is essentially the same thing, minus the senna. "Purifico No. 3" contains 14 per cent alcohol, sugars, valerian, piperine and tannic acid. In 1917 the government prosecuted the promoters of "purifico" on the charge that the claims that this stuff would cure cancer was fraudulent. They pleaded guilty and were fined. In 1924 the promoters were debarred from the use of the mails. Purifico now appears to be handled by the Chattanooga Chemical Corporation of Ashville, New York, and all direct reference to cancer has been omitted from the advertising. This concern states that it does not claim Purifico a specific and does not guarantee a cure. It is obvious, however, that the claims made for many years that Purifico is a cure for cancer are still being traded on. (Jour. A. M. A., Jan. 30, 1926, p. 368.)

Ethylene and Nitrous Oxide as Anesthetics.—Ethylene produces greater relaxation than nitrous oxide, also much higher percentages of oxygen can be administered with it, and therefore, cyanosis is not produced as with nitrous oxide. According to *New and Nonofficial Remedies* the advantages over nitrous oxide are equally rapid but more pleasant induction, satisfactory relaxation without cyanosis or sweating, and rapid recovery. The disadvantages of ethylene are the odor, the inflammability of the gas, and an apparently increasing oozing of the wound during its use. (Jour. A. M. A., Jan. 30, 1926, p. 368.)

Book Announcements

Potter's Compound of Materia Medica, Therapeutics and Prescription Writing, with Especial Reference to the Physiological Action of Drugs. Based on the Tenth Revision of The U. S. Pharmacopoeia, Including also Many Unofficial Remedies. By A. D. BUSH, B. S., M. D., Professor of Pharmacology, Emory University. Ninth Edition, Revised. Philadelphia. P. Blakiston's Son and Company. 1012 Walnut Street. 12mo. 262 pages. Cloth. Price \$2.00 net.

Nephritis. By HERMAN ELWYN, M. D., Assistant Visiting Physician, Gouverneur Hospital, New York, N. Y. New York. The Macmillan Company. 1926. 8vo. 347 pages. Cloth.

The Pharmacopoeia of the United States of America. Tenth Decennial Revision (U. S. P. X.) By authority of the UNITED STATES PHARMACOPOEIAL CONVENTION held at Washington, D. C., May 11, 1920. Prepared by the Committee of Revision and Published by the Board of Trustees. OFFICIAL FROM JANUARY 1, 1926. Agent, J. B. Lippincott Company. Philadelphia, Pa. 8vo. 626 pages. Cloth.

Ophthalmic Neuro-Myology. A Study of the Normal and Abnormal Actions of the Ocular Muscles from the Brain Side of the Question. By G. C. SAVAGE, M. D., LL.D., Professor of Ophthalmology in Medical Department of Vanderbilt University, from 1886 to 1911; Ex-President of the Tennessee State Medical Association; Ex-Chairman of the Section of Ophthalmology of the A. M. A., etc. Second Edition. Published by the Author, 167 Eighth Avenue, North, Nashville, Tennessee. Printed by McQuiddy Printing Company, Nashville, Tenn., 1926. Small 8vo. 227 pages, with 39 full page plates and 12 illustrative figures. Cloth. Price \$3.00.

Psychoanalysis and Beyond Psychoanalysis. By LEONARD L. LANDIS, M. D., Formerly Assistant Clinical Instructor at Post-Graduate Hospital and the University of New York Internal Medicine Department, Present National Chairman of the American Association of Independent Physicians, etc. 1924. American Association of Independent Physicians. Small 8vo of 212 pages. Cloth.

The Johns Hopkins Hospital Reports. Volume XXII, Fasciculus I. Baltimore. The Johns Hopkins Press. 1926. Studies on Bacterial Infective Carditis by William S. Thayer. 185 pages.

Cheer up my friend and don't be blue,
The world is mighty good to you;
There is no time to fret and grieve,
For sometimes you will have to leave
This place—and go elsewhere to dwell,
It will be Heaven—but might be hell;
So fill the hours with joy and cheer
The while that you are staying here;
Let not one hour be lost in tears
Of all life's many changing years,
Be gay, be happy—always smile,
'Twill pay thru the long afterwhile.

—Selected.

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Editorial

Cerebral Hemorrhage and High-Blood Pressure.

General practitioners, internists and neurologists are necessarily interested in these grave phases of vascular disease. Chronic hypertension and cerebral hemorrhage are symptomatic phenomena of arterial disease; the two conditions express in different ways arterial disease. High blood pressure precedes cerebral hemorrhage; the bleeding vessel in the brain follows a train of pathology of which hypertension is an antecedent expression. Many humans die because of disease of the arteries: indeed a majority of deaths in chronic maladies are due directly or indirectly to disease in the arteries. Cerebral hemorrhage may result in immediate death; in a slow manner of death, with a prolonged last illness; in a long drawn out unconsciousness followed by a slow recovery to consciousness and attended by paralysis of one sort and another; in a partial recovery to a state of physical and mental lameness; or in an apparent as-good-as-before condition. Each instance is attended by an ever threatening second stroke. General practitioners and internists find a call for a consideration of the etiology and pathology of arterial disease that is characterized by high tension, because many patients displaying this symptom are observed in the fourth, fifth and sixth decades. A review of so common a clinical association as high blood pressure and cerebral hemorrhage, therefore, seems not inappropriate.

High blood pressure should be considered

first. The phenomenon of hypertension is met with in chronic diseases: in cardiac, renal and vascular disease. High blood pressure is associated with well-known grave syndromes such as, convulsions, coma, dyspnoea, and paralysis. High blood pressure is a part of advancing age: it is a companion of dimness of vision, difficulty of hearing, dizziness, vertigo, weakness. High blood pressure is found in the alcoholic, in the syphilitic and the obese.

We may divide cases of chronic hypertension in three general groups. (1) Essential hypertension cases, (2) arteriosclerosis cases, (3) chronic nephritis cases with cardiovascular disease.

CHRONIC ESSENTIAL HYPERTENSION

One is forced to consider, in chronic essential vascular hypertension, the probable evolution of the process. Especially, as one thinks of high blood pressure with cerebral hemorrhage, one must think of a vascular system under strain and stress and degeneration. Strange as it may seem the pathogenesis of hypertension and vascular disease is not clearly understood even today after decades of active study of it. The causation and pathology is still not agreed upon. One may be right in saying, however, that this lack of agreement may be due to the fact that there is no one cause or pathogenesis for all cases of hypertension. It is more likely true that, as the process takes up its pathogenesis, first causes bring into operation one or more contributory causes. These causes interlocked, and accumulative, gather with avalanche-like force to effect the evidence of hypertension and vascular disease. To particularize, a chronic infection may serve to set up a primary essential hypertension by producing a mere impermeability of the kidney. So, the daily intake of protein and daily quota of endogenous protein will be stopped or hindered, and retention of urinary elements begun. Again, the habit of excess in food, particularly protein, together with the urge and stress of modern life, may produce, also, hypertension in vascular field, particularly in the small capillary field without signs of massive arterial disease, by producing spasm and constriction of arterial capillaries. This probably starts the process of high tension in the arterial system. But we must say that essential hypertension is caused by fac-

tors not always discoverable and, for a certainty, the primary causes are really unknown. Only by circumstantial evidence, often, are causes and processes of the early signs of high blood pressure discovered or identified. But one may turn to the physiology of the metabolism of protein for an illustration of the action of the metabolites upon blood pressure. The blood being the medium of transportation of the food-protein amino-acids and also the medium of elimination through renal blood of the rejected amino-acids, the first thought may naturally be that a failure of elimination of amino-acid may be a cause of retention which may become noxious. It seems probable that it is along this line of investigation that Major has done suggestive investigation.

Major* reported, in the proceedings of the Association of American Physicians, some work along this line. He called attention to the fact that for some time studies of the known metabolites of the urine suggest a relation to hypertension. The pressor effects of the guanidin base were particularly impressive. Major reported injections of guanidin in dogs which were followed by gradual increased blood-pressure that was sustained for four to five hours. He found that in decerebrated dogs a marked rise in blood-pressure was obtained by intravenous injection of methyl-guanidin sulphate. He found that such a marked vaso-constriction occurred in rabbits that it was impossible to get blood from the animal's ear. So the jugular vein or heart were employed in order to get blood. He found that the renal vessels also showed marked vaso-constriction. The observations suggested that the peripheral action of vascular spasm, due to guanidin, may be the cause of human arterial hypertension.

Major† also studied patients with arterial hypertension with reference to guanidin elimination. He found that patients with arterial hypertension usually had a lower excretion of these bases than normal persons or than those suffering from other diseases. But, however, in essential hypertension and chronic nephritis, Major failed to encounter any constant increase in blood guanidin. So animal experimentation was conducted in order to explain this important missing link in the evidence. From these experiments he got the suggestion that this failure to find increase in blood guanidin

is due to rapid excretion of guanidin; or to storage in some tissue, or transformation into some other substance that has a prolonged pressor effect, or to a rapid saturation with destruction of the excess.

Major summarizes his interesting clinical observations by noting that normal persons will show a daily average excretion of guanidin bases of 100 mg. while patients with hypertension will show a marked diminution of excretion of guanidin bases. Cases with essential hypertension and cases with chronic nephritis with hypertension show marked diminution of excretion of guanidin bases. It is interesting to note that chronic nephritics are unable to excrete properly urea, uric acid, creatin and creatinin and the "undertermined group of substances resulting from protein metabolism, classes under non-protein nitrogen, which includes the guanidin compounds." But it is significant that urea, uric acid, creatin, and creatinin produce no effect on blood-pressure but that guanidin has a decided pressor effect.

Major concludes suggestively by saying it seems quite possible that kidneys badly damaged by chronic nephritis, by small vessel sclerosis, by arteriosclerosis, may be unable to excrete properly these substances having such a marked pressor effect. Such a retention of guanidin bases, unless they were utilized or destroyed may result in an elevation of blood-pressure. On some such foundation one may attempt to build the structure of the etiology of incipient hypertension.

In this connection, Fishberg's* study on anatomic findings is that essential hypertension indicates that hypertension cannot be due to general arteriosclerosis. In seventy-two cases of hypertension studied by him there was no kidney involvement; in a study of the arteries in different parts of the body he found that sclerosis of the small arteries occurred only in the kidney, frequently the liver, spleen and pancreas, rarely the brain and heart, and only a little in the vascular area of the muscular and cutaneous system. As a true general arteriosclerosis does not exist, essential hypertension can not be caused by it. One has to fall back upon the hypothesis of Gull and Sutton for the statement that disease of the arterioles is primarily the cause of hyperten-

*J. A. M. A., Vol. 84, No. 22, 1691.

†J. A. M. A., Vol. 83, No. 2, page 83.

*Anatomic Findings in Essential Hypertension, Arch. Int. Med. 36: 650, May, 1925, J. A. M. A., Vol. 84, No. 2, page 1826.

sion by mechanically narrowing the peripheral strained vessels; this is supplemented by Johnson's suggestion (1868) that excretory products retained induce spasm in the peripheral arteries.

Whether or not cerebral hemorrhage may occur in essential hypertension we are not prepared to answer. One case which was classified as essential hypertension, however, last year, had a cerebral hemorrhage. This case had never shown a tension of greater than 160 mm. hg. She was sixty-eight years of age, and renal function was only slightly below normal. Her blood chemistry was not far from normal. The morning of her stroke she showed 190 pressure, which quickly fell when she was bled. Since then her pressure taken daily for more than a year has not been above 160.

ARTERIOSCLEROSIS

Arteriosclerosis, associated with heart and renal disease, is a more obvious cause of hypertension and it is a more direct cause of hypertension. In this causes are definitely due to chronic infections, alcoholism, over-eating, over-work, stress and strain of modern life. In the early stage the causes operate to produce degenerative changes in the vessel walls, particularly the intima. In more advanced stages of the disease pronounced degenerative changes occur. In diffuse arteriosclerosis the process is widespread throughout the body from aorta to small arteries.

The media and intima undergo necrotic and hyaline changes and the muscular coat first undergoes hypertrophic changes and later hyaline and calcareous degeneration.

CHRONIC NEPHRITIS

Chronic nephritis is another general cause of hypertension and is associated with cerebral apoplexy.

Chronic Bright's disease, causing the retention of the urinary solids in the blood, and creating a uremic state of long standing, superinduces the degenerative changes in the vascular system. This produces increased tension in the arterial system which ultimately brings about a rupture of the cerebral artery in the case of apoplexy. In connection with arteriosclerosis and nephritis a patient is recalled who suffered a stroke of apoplexy two and a half years ago. The patient had been under professional care for ten years before

the stroke of apoplexy. In 1913 he weighed 191 pounds and had a systolic blood pressure of 160 mm. hg. His urine showed positive albumin and hyalin casts. In 1914, 1915, 1916 and 1917, the urine showed distinct traces of albumin and granular casts. In September, 1917, his tonsils were removed and his weight was 177 pounds with the same urine findings. In 1919, 1920 and 1921 his weight remained around 175. In 1922 urine examination showed granular and hyaline casts. In spite of more or less constant medical direction, the weight and blood pressure became excessive.

After the stroke, October 9, 1923, he was weighing 190 pounds, his blood pressure was 190 systolic, his urinary findings were the same. At the time of his stroke, he was discovered walking about his bedroom, after midnight, unable to speak, and seemingly unconscious of his movements. He was brought to the hospital, and lapsed into unconsciousness which persisted for three days. Gradually consciousness returned, but he was unable to speak at first. After five weeks in the hospital he was able to command a few words. He has improved from this condition in two and a half years. Blood urea was 26 mgms. per 100 c.c. of blood, renal function 45 per cent of total dye in two hours, Wassermann was negative, and his urine showed hyalin and granular casts.

When he left the hospital he weighed 177 pounds and his blood pressure was 168 systolic. From that time to the present his highest systolic reading has been 230 systolic and his lowest has been 150 systolic. His weight has mounted to 204 and his last blood-pressure reading was 196 systolic.

During these thirteen years of observation he has been examined and instructed rather regularly every few weeks. Today he has a slight aphasia, as the resulting disability of the vascular accident.

One may look for associated cardiac hypertrophy in these cases. Such a chronic state of renal dysfunction with its blood chemistry marked by a high degree of non-protein-nitrogen and low renal function, is conducive to vascular crises.

This condition is not an infrequent background for the syndrome of cerebral hemorrhage.

APOPLECTIC STROKE

The brain receives blood from the internal carotid arteries, the vertebral arteries, and a bit from spinal arteries. In an anastomosis within the skull is the circle of Willis. In cerebral hemorrhage from high blood pressure and vascular disease, the bleeding is intra-cerebral and most frequently in the neighborhood of the corpus striatum, usually toward the ante-section of the lenticular nucleus. Bleeding may be small and limited to the lenticular body, the thalamus and the internal capsule. The marked anatomy of the vessels involved is probably due to degeneration of the media, although formerly the intima was thought to be more frequently the cause producing miliary aneurysm-like degeneration. On the other hand there may be only diffuse degeneration of the cerebral vessels. It is doubtful whether a normal cerebral artery ever ruptures; arterial disease and high tension seem to be prerequisites of apoplexy. Cerebral hemorrhage rarely occurs before forty, except in the case of syphilitic arteries, when it may occur early in life.

One need hardly cite the symptoms. Warnings of the apoplectic stroke are consonant with symptoms of hypertension. Although the attack may occur without warning and in some cases with evidence of the usual signs of hypertension: numbness, tingling, pains in the limbs, dizziness, vertigo, visual disturbances may be cited as prodromata, but yet these are not invariably present nor uniformly experienced. The term apoplectic stroke is appropriate in some instances, for the patient is struck by a sudden attack of unconsciousness, or by a partial paralysis. In some cases there is deep unconsciousness, the face is congested or cyanotic, pupils vary, being usually dilated, though some times unequal but inactive. If the hemorrhage irritates the nucleus of the third nerve the pupils are contracted, indicating hemorrhage into the pons or ventricles. Respirations may be slow, noisy and stertorous; they may be Cheyne-Stokes in rhythm. The cheeks of the affected side balloon on expiration. The pulse under tension is full, bounding but slow, convulsions are not uncommon. Hemiplegia is present usually to a more or less degree. If an arm or leg is lifted, it drops as a dead weight.

The patient may not have so sudden or profound an onset. Its symptoms may be more

gradual in coming on. One patient only a week ago was seen with paralysis of upper lip and side of the face with a blood pressure of 200 systolic. In a few hours the paralysis involved the whole of the left side, but his consciousness was not greatly affected. There are numerous possibilities in the matter of onset. Hemiplegia may persist due to unilateral paralysis from pressure upon the motor area of the pyramidal tract in any part of its course. The lesion may be at the motor cortex, the pyramidal fibres in the corona radiata and internal capsule, in the cerebral peduncle or pons varolii.

The continuations of hemiplegic manifestations and the probable location of the lesion bringing about such paralysis border more upon the neurologic side of the subject than it is our intent to comment upon. No one can exceed Osler in his clear description of these hemiplegic eventualities. To this author our foregoing observations may be accredited.

Apoplexy is a neurologic catastrophe which is brought about by a chronic malady of the arterial system. An accidental rupture of an arteriosclerotic cerebral blood vessel with extravasation of blood and oedema, either or both, results in the neurologic lesion and permanent or transitory loss of function.

The real problems involved in apoplexy are. (1) the management of the stage of cerebral hemorrhage and its immediate by-effects, to rescue the patient from death, to salvage for him as much normal pyramidal nerve conduction as possible, and to restore brain function. (2) to study the problems of internal medicine which are related to the pathogenesis and maintenance of hypertension arterial disease, in order to prevent a second stroke, and to retard the downward course of chronic vascular disease.

News Notes

Dates Set for Annual Meeting of the Medical Society of Virginia.

The Executive Council of the Medical Society of Virginia, at a meeting held the middle of February, selected October 12th, 13th, 14th, and 15th as the dates for our fifty-seventh annual meeting to be held in Norfolk.

All our members who have attended Norfolk meetings will want to go there again.

Now is the time for the others to find out what a fine place Norfolk is for a meeting.

The Tri-State Medical Association of the Carolinas and Virginia

Held its regular meeting in Fayetteville, N. C., February 16th and 17th, under the presidency of Dr. W. Lowndes Peple, of Richmond, Va. The meeting was well attended, a number of new members were received, and altogether, it was considered one of the best meetings in the history of the organization. On the first evening, Dr. and Mrs. R. L. Pittman tendered a reception to the members and the ladies accompanying them. In addition to many small entertainments, a trip was enjoyed to Ft. Bragg.

Dr. A. J. Crowell, Charlotte, was elected president; Drs. L. T. Price, Richmond, Va., H. S. Black, Spartanburg, S. C., and Seavy Highsmith, Fayetteville, N. C., vice-presidents, and Dr. James K. Hall, Richmond, was re-elected secretary-treasurer.

New councilors elected are: Drs. M. H. Wyman, Columbia, S. C., Douglas Murphy, Rutherfordton, N. C., and Warren T. Vaughan, Richmond, Va. Councilors holding over are: Drs. W. B. Porter, Roanoke, Va., F. B. Johnson, Charleston, S. C., and E. S. Boice, Rocky Mount, N. C., for one year; and Drs. Z. G. Smith, Marion, S. C., William Allan, Charlotte, N. C., and H. S. Belt, South Boston, Va., for two years.

Columbia, South Carolina, was selected for the 1927 place of meeting.

American Medical Association.

Official call has been issued for the seventy-seventh annual session of the Association in Dallas, Texas, April 19th to 23rd, inclusive. The House of Delegates will convene on Monday the 19th, while the Scientific Assembly will open with the general meeting on the evening of the 20th at 8:30 P. M. The various sections will commence on the 21st at 9 A. M. Dr. William D. Haggard, Nashville, Tenn., is president and Dr. Wendell C. Phillips, New York City, president-elect.

Reduced railroad rates may be secured on the certificate plan. Dallas has a number of good hotels and is prepared to handle the crowd, but it is always well to make hotel reservations in advance. Dallas will be at her loveliest at this season and a good time may be anticipated by all who attend.

Hospitals for Rural Communities.

The Commonwealth Fund, a philanthropic foundation with offices at 1 East 57th Street, New York City, announces an initial appropriation of \$350,000 to be expended for the construction of two hospitals in rural communities. This appropriation marks the beginning by the Fund of a new project which will involve the building of two such hospitals a year.

Farmville, Virginia, has been selected from among more than fifty applications as the location of the first of these hospitals, following a special study by Henry C. Wright, hospital consultant and former deputy commissioner of the New York City Department of Public Welfare. James Gamble Rogers and Henry C. Pelton, Associated, are preparing plans for their first unit.

On March first the Fund established a Division of Rural Hospitals under the direction of Mr. H. J. Southmayd, at present hospital consultant to the Cleveland Welfare Federation. The Department plans to receive applications from rural communities under certain conditions, chief of which is that the Fund will in the case of approved applications contribute two-thirds of the cost of construction and equipment of the hospital, while the local community must contribute one-third. The community must also meet operating and maintenance costs.

Referring to this new project, the annual report of the Fund states that rural communities, despite certain natural advantages, frequently afford a less satisfactory opportunity for healthful living than many of our cities.

This is partly due to lack of a sufficient number of competent physicians in rural communities. The need of facilities with which to work, absence of stimulus and of means to improve both knowledge and technique makes physicians find little incentive to remain in rural districts.

A modern and well-equipped hospital is one of the most important needs in many such communities. It is hoped that this new work by the Commonwealth Fund may help to improve conditions of rural medical practice.

The Commonwealth Fund, established in 1918 by Mrs. Stephen V. Harkness and chartered to carry on work "for the benefit of mankind," has just announced additional gifts from Mrs. Harkness which increase its total

endowment to \$38,000,000. The annual income, amounting last year to \$1,339,000, is expended for a variety of educational, scientific, and humanitarian activities. The Fund has devoted special attention to child welfare work and its demonstration programs for the prevention of juvenile delinquency and for the promotion of child health have until now received the major share of its annual appropriations.

It is announced that the \$60,000 required from Farmville, Va., and the surrounding district is nearly subscribed. The Commonwealth Fund then gives \$120,000 for the hospital. It is expected that contract will be let about April 1st for the Southside Community Hospital.

Dr. Garnett Nelson

Has been re-elected president of the Richmond Tuberculosis Association for this year.

Dr. T. K. McKee,

Saltville, Va., has been spending some time at Hot Springs, Ark.

Dr. R. W. Browne,

Formerly of Norfolk, Va., has been transferred from Lake City, Florida, to the U. S. Veterans' Hospital No. 65, St. Paul, Minn.

Health Notes From Virginia.

It seems that the bulletins recently issued by the State Department of Health have been of unusual interest.

Early last month, an instructive lecture was given over WRVA radio to the people of the State on how to avoid catching colds, grippe and pneumonia, which have been so prevalent. These are every day truths to the physician but are worth passing on to the layman.

Later, a letter was sent the doctors of the State calling attention to the method for vaccination against smallpox, recommended by the U. S. Public Health Service: Simple as vaccination seems to the regular practitioner. it is never amiss to be advised as to the best means for the best results. The State Health Department will gladly send copies of the letter to any interested doctors, or, if requested, will send some one to demonstrate the best methods for vaccinating to any local society or group of doctors.

Following this, a letter was sent out calling

attention to the fact that the quarantine period for scarlet fever has been reduced from four to three weeks. Copies of the regulation have been sent all Virginia doctors, but others will be sent on request.

So far reaching have been the good results of the work of our State Board of Health that there should be no question on the part of our General Assembly as to continuing the appropriation which has been allowed, but, every effort should be made to expand the work of our health guardians by increasing the amount of money now given this department as far as can be done in reason.

Members of Health and Sanitation Committee.

Drs. H. W. Blanton, W. T. Graham and Charles H. Phillips have been appointed members of the Health and Sanitation Committee of the Richmond Chamber of Commerce.

Dr. E. P. White,

Of Odd, Va., has been elected president of the First National Bank of Poquoson, Va.

Dr. and Mrs. H. W. Porter,

Of Louisa, Va., were recent visitors in Washington, D. C.

End of Volume.

This issue of the journal completes the fifty-second annual volume of the MONTHLY. With ups and downs it has continued its career and we feel justly proud of the fact that in all these years it has been recognized as one of the good journals of the country.

Let's all work for its continued success in the coming year—remember this is your journal—contribute to its columns and patronize its advertisers.

Fund Given New York University for Research in Prevention and Cure of Pneumonia.

Announcement has just been made of a gift to New York University from Lucius N. Littauer, wealthy glove manufacturer, the funds to be used for research studies in the prevention and cure of pneumonia. It was stated that this work to be under the control of Dr. William H. Park, who has been professor of bacteriology and hygiene in New York University and Bellevue Hospital Medical College since 1897, and director of the Bureau of Laboratories of the New York City Department of Health since 1894.

The American Society of Clinical Pathologists

Will hold its annual meeting in Dallas, Texas, April 15-17th, just prior to the meeting of the American Medical Association. Dr. Frederick E. Sondern, of New York City, is president, and Dr. Ward Burdick, of Denver, Col., secretary-treasurer.

Dr. and Mrs. Perry H. Wiseman,

Avondale, N. C., recently visited relatives in Richmond. Dr. Wiseman is a member of the class of '25, Medical College of Virginia, and Mrs. Wiseman, formerly Miss Grace Furrh, was superintendent at Hygeia Hospital, this city.

Progress of State Society Journals.

Under the above caption, *the Journal of the A. M. A.*, in a recent editorial, tells of how the Co-operative Medical Advertising Bureau has assisted the state society journals in reaching a degree of uniformity which hardly seemed conceivable when the Bureau was organized. Upon the suggestion of the editors of several state journals, the Bureau entered upon its work in 1913, about the time when the cost of publishing medical journals in many of the states was becoming almost prohibitive. To reduce cost, many were being printed on poor paper and were carrying advertisements which were of doubtful value. It is stated that a collection of state journals at that time failed to demonstrate "even the two-by-two uniformity of the passengers of Noah's Ark," in any particular.

This central advertising bureau deserves great credit for the way in which it has co-operated with the state journals, assisting them to overcome obstacles. Thirty state journals are now numbered in the family of this Bureau. All of these carry reputable advertising, are being printed on good paper, are uniform in size, and ever strive to better themselves in every way, with the aid of the Bureau.

Dr. Weaver Shot by Patient.

Dr. Delmar F. Weaver, of Somerset, Va., was shot three times by a patient when summoned to her home to attend her child the last of February. She then attempted to take her own life. Dr. Weaver was taken to University of Virginia Hospital. At last reports, it was hoped that his injuries, while serious, may not be fatal.

The American College of Surgeons,

Maryland, Virginia, West Virginia and District of Columbia Section, held its annual meeting in Cumberland, Maryland, March 2nd and 3rd. The attendance was good and the meeting was of unusual interest in every way. The State Executive Committee for Virginia, for the coming year, is as follows: Chairman, Dr. Wilson E. Driver, Norfolk; secretary, Dr. S. S. Gale, Roanoke; counselor, Dr. Frank Johns, Richmond.

The Tubercle Bacillus Under Investigation.

Dr. William Charles White, of the U. S. Public Health Service, in an address before the annual meeting of the Virginia Tuberculosis Association, in Richmond, February 5th, told of the organized research which is being carried on in an effort to know more of the nature of the tubercle bacillus and the cure of the disease it causes.

Dr. White, Chairman of the Committee on Medical Research created by the National Tuberculosis Association, told of the methods pursued by this committee, which unlike most research bodies is not working in a single environment but is using the great laboratories of several universities and also the facilities of two large commercial firms manufacturing bacteriological products. In this way, the foremost scientists of the country have been enlisted and are working simultaneously on different phases of the same problem.

Dr. White stated that while the tubercle bacillus is the best known and first discovered germ, it is still the most illusive and because of lack of knowledge on the subject, is still causing the death of 100,000 Americans, annually. He said that in round figures the cost to the United States is about five hundred millions a year, costing more than the army, nearly twice as much as the navy, a third more than the Veteran's Bureau, and only being exceeded by one department of the Government, namely, the interest on our public debt.

Dr. White remarked that it was peculiarly fitting that the National Tuberculosis Association, the largest and most powerful national and international association against any disease, should be the organizer of this new field of research for better methods of controlling tuberculosis. It raises its funds through the sale of Christmas Seals by the State and local tuberculosis associations and is

founded for human welfare with altruism as its sole purpose.

Dr. Dean B. Cole, Richmond, and Dr. J. B. Nicholls, Catawba Sanatorium, were among new members elected to the Board of Directors of the Virginia Tuberculosis Association at this meeting.

Captain W. W. Baker, was elected honorary president, Dr. C. R. Grandy, Norfolk, president, and Dr. Roy K. Flannagan, Richmond, secretary of the board.

Dr. T. H. Massey,

Who has practiced for the past seven years in Smithfield, Va., has moved to Suffolk, Va., where he will continue the practice of his profession. Dr. Massey has offices in the National Bank Building of that place.

How to Care for Needles and Syringes.

A pamphlet has been issued by, Becton, Dickinson & Company, Rutherford, N. J., on "Standardizing on Sizes and Makes of Hypodermic Syringes and Needles." This pamphlet, besides suggesting the proper gauges and lengths of needles and the proper size syringes for the various operations, outlines the comparative merits and cost of steel, nickeloid, gold and platinum-iridium. It also gives valuable information regarding the care and sterilization of needles and syringes.

Any physician interested can secure a complimentary copy by writing the above named company.

Dr. Tom A. Williams

Has moved from Washington, D. C., to Florida, with offices at 46 Northeast Fifth Street, Miami. He is limiting his work to the nervous and endocrine systems. Dr. Williams has his home at Helene Apartments, Miami Beach.

Several Volumes of Virginia's War History Ready.

The Virginia War History Commission announces the completion of the first four volumes of the Virginia War History which has been prepared by the Commission. Volumes V and VI are in the hands of the printer and orders are also being taken for them. These six volumes may be obtained at a cost of \$2.00 each for cloth-bound copy or \$1.50 for paper-bound copy. Orders with checks should be sent to the Publication Department, Virginia War History Commission, State Capitol, Richmond.

Dr. Martin B. Hiden,

After practicing for some time at Water-

ford, Va., has now located at Warrenton, Va., for the practice of his profession.

The Southwestern Virginia Medical Society

Will hold its regular semi-annual meeting at the Patrick Henry Hotel, Roanoke, March 30th and 31st, under the presidency of Dr. J. M. Miller, of Wytheville. Dr. E. G. Gill, Roanoke, is secretary-treasurer of the Society. In addition to the voluntary papers, there will be a symposium on Appendicitis, and papers by three invited guests—Dr. Joseph Bloodgood, of Baltimore, and Dr. O. H. Perry Pepper and Dr. Lewis H. Clerf, both of Philadelphia.

Dr. George H. Snead,

Formerly of Fork Union, Va., has moved to Richmond, Va., and has offices at the West End Clinic Building, 2618 Grove Avenue. He will limit his work to diseases of the eye, ear, nose and throat.

The District of Columbia Public Health Association

Was organized in Washington, on February 8th, the special purpose of which will be to take an active interest in public health affairs in the District. The following officers were elected: President, Dr. Victor C. Vaughan; vice-presidents, Drs. George M. Kober and William C. Fowler; secretary, Dr. James A. Tobey, and treasurer, Dr. W. C. Cox.

The National Committee for the Prevention of Blindness,

Which now includes in its membership more than 14,000 men and women, has moved its headquarters to the building occupied by the other active members of the National Health Council at 370 Seventh Avenue, New York City. Thirteen other health organizations are housed in this building. This Committee has aided greatly in the fight for safeguarding the sight of children at birth, for conserving the eyes of school children, and for protecting the eyes of industrial workers.

Dr. Hunter McClung

Has been elected president of the Golf Club of Lexington, Va.

Dr. W. O. Smith,

Altavista, Va., was a recent visitor in Richmond.

Congratulations to the Taylor Instrument Companies!

The January Bulletin published by the Taylor Instrument Companies, of Rochester, N. Y., announces, with 1926, the seventy-fifth anniversary of that organization. They tell of

their beginnings on small capital but with high ideals. The "quality" and "service" given by the Taylor Instrument Companies today is but evidence of the truth of that old adage—"Great oaks from little acorns grow."

We extend this Company our congratulations and best wishes for continued success.

The Virginia Society of Oto-Laryngology and Ophthalmology

Will hold its regular meeting in Petersburg, April 27th. Several invited guests will present papers and the meeting promises to be an interesting one. Dr. H. S. Hedges, Charlottesville, is president, Dr. Clifton Miller, Richmond, vice-president, and Dr. E. U. Wallerstein, Richmond, secretary and treasurer.

Directors in Boat Club.

Dr. J. Henry Rawlings and Dr. James R. Gorman are among the directors who have been elected for the Lynchburg, Va., Boat Club.

Dr. James Morrison,

Lynchburg, Va., has been elected president of the Boy Scout Council of that city, for this year.

Dr. A. B. Graybeal,

Recently of Grant, Va., has moved to Marion, Va.

New Superintendent at Lynchburg Hospital.

Miss Alberta V. Terrell has been appointed superintendent of the Lynchburg, Va., Hospital, *vice* Miss Florence Wells, resigned. Miss Wells has returned to her home in Chase City, Va.

Dr. Guy R. Harrison,

Richmond, Va., recently attended a joint meeting of the Raleigh Dental Society and the Raleigh Academy of Medicine, at which time he read a paper on "Dental Problems of Interest to the Physicians."

Many Products Improved Through Food and Drugs Act.

A report issued by the chief of the Bureau of Chemistry, U. S. Department of Agriculture, tells of some noticeable improvements brought about during the past year by the enforcement of the food and drugs act. It is stated that "although much improvement is brought about through prosecution of violators, the bureau regards the law as a corrective rather than a punitive measure. The specialists of the bureau assist manufacturers and others in obtaining information that will

enable them to so conduct their process of manufacturing, packing, storing and shipping that their products will meet the requirements of the law. The extensive information developed by their researches * * * is made available to all who desire to improve their processes or the quality of their products. Information is also furnished regarding the labeling requirements in order that each manufacturer may devise truthful and informing labels for his products."

Dr. Bernard H. Kyle,

Of Lynchburg, Va., recently held a clinic for crippled children at the Chesapeake and Ohio Hospital at Clifton Forge, Va.

Dr. T. S. Hening

And family, of Jefferson, Va., spent a short vacation recently with friends in Nelson County, Va.

Elizabeth Buxton Hospital has Anniversary.

On February 23rd, Elizabeth Buxton Hospital, Newport News, Va., celebrated its twentieth anniversary and open house was kept all day, light refreshments being served the many visitors. Among the callers was the first patient of the hospital, who was operated on in 1906. The guest of honor was Mrs. Elizabeth P. Buxton, mother of Dr. Buxton, for whom the hospital was named.

When started twenty years ago, the hospital had seventeen beds. With the new wing which was opened for inspection, on this anniversary, it can now care for approximately one hundred patients. It is general in its work, admitting medical, obstetrical and surgical cases. A training school for nurses is operated in connection with the hospital. Miss Elizabeth Buxton, daughter of Dr. Buxton, is superintendent.

An impressive feature of the day was the presentation by the hospital staff of a memorial tablet to the late Dr. E. M. Newsom.

Tribute to Early Ophthalmologist.

At the January meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia, Dr. Hunter H. McGuire, of Winchester, Va., by invitation, delivered an historical sketch on the work of his grandfather, Dr. Hugh H. McGuire, in ophthalmic surgery.

Dr. McGuire, on this occasion, presented the Section on Ophthalmology with an old set of couching needles which were used by his

grandfather between the years 1822 and 1850, in performing the operation for cataract.

Dr. William Price Bittinger,

Of the class of '23, Medical College of Virginia, after a short time in Huntington, W. Va., has located at Richwood, W. Va.

The American Proctologic Association

Meets in Indianapolis, Ind., the Friday and Saturday before the meeting of the American Medical Association, so that members may go from this meeting to Dallas. Dr. D. C. McKenney, Buffalo, is president, and Dr. William Rolfe, Boston, secretary of the Association.

Dr. William F. Drewry,

City manager of Petersburg, Va., has been re-appointed to the Governor's Advisory Board on Mental Hygiene for the purpose of examining the mental condition of patients. This will be the third Governor under whom Dr. Drewry has served in this capacity.

Narcotic Tax Reduced.

The Federal Tax Reduction Bill, which passed the Senate in February, carried the provision already passed by the House of Representatives, reducing the annual registration fee of physicians under the Harrison Narcotic Act from \$3.00 to \$1.00.

Dr. Mendelsohn Ill.

As we go to press, Dr. Ludwig Mendelsohn, of Norfolk, Va., is reported as being seriously ill.

Dr. and Mrs. G. B. Barrow,

Clarksville, Va., were recent visitors in Richmond, having come to attend the marriage of a friend.

The Physician's Home.

The Physicians' Home idea is growing in interest and it is hoped shortly to have sufficient funds in hand to organize one section and make a success of it and then to expand so as to have several of these homes in the various sections of the country. The idea developed about five years ago in one of the New York Medical Societies. These homes are to be established to care for the physician who is incapacitated in his old age, so that he may pass his latter days in the modest comfort and quiet which he deserves. The secretary of the Physicians' Home, Inc., 22nd Floor, Times Building, New York City, will give any information requested.

The Navy's Human Accountability.

This is the subject of an article by W. Armistead Gills, M. D., U. S. Navy (retired), of Richmond, Va., which appeared in a recent issue of *The Nation's Health*. Dr. Gills has published several similar articles, recently, in various magazines, and they furnish much food for thought.

Tri-State Medical Association of West Virginia, Ohio and Kentucky.

Dr. Thomas W. Moore, Huntington, W. Va., has been elected president of this association, which has been recently organized, and Dr. F. O. Marple, also of Huntington, secretary-treasurer.

Dr. E. M. Wilkinson,

Of Welch, W. Va., of the class of '23, Medical College of Virginia, has returned home after a visit to his parents, Dr. and Mrs. R. E. Wilkinson, at McKenney, Va.

American Health Congress.

For the first time in the history of public health in America, those who are engaged in this work will meet together in Atlantic City, N. J., May 17-22. Sixteen national organizations will participate under the auspices of the National Health Council, of 370 Seventh Avenue, New York City. Among the prominent speakers are Sir Arthur Newsholme, who has been prominently identified with health work in England, Professor C. E. A. Winslow, President of the American Public Health Association, Dr. Ray Lyman Wilbur, President of Stanford University, and Dr. George E. Vincent, President of the Rockefeller Foundation.

The exhibits will form one of the most educational health displays that this country has ever seen. Headquarters for the meeting will be at the Steel Pier.

Special railroad rates from all parts of the country have been secured for the estimated 7,000 people who will attend.

Dr. and Mrs. O. T. Amory,

Of Newport News, Va., left the middle of February for a short visit to Dr. Amory's brothers in Miami and Ft. Lauderdale, Fla.

Dr. H. D. Ribble,

Of Blacksburg, Va., is now at Mount Hope, W. Va., where he will remain until the first of May.

Size of Families by Occupations of Husbands.

According to statistics which have been compiled by the Department of Commerce, in twenty states, in 1924, there were 270,045 women between the ages of 35 and 44 years who became mothers and who had husbands engaged in gainful occupations. The total number of children ever born to these mothers, including the 1924 births was on an average of 6.7 per cent per mother. The highest average number of children appears for the wives of mine operatives and the lowest percentage for the wives of chemists, assayers and metallurgists, dentists, physicians and surgeons, technical engineers, lawyers, judges and justices.

1926 Officers of Staff of St. Peter's Hospital.

Dr. John H. Tucker has been elected president of the staff of St. Peter's Hospital, Charlotte, N. C., for 1926; Dr. William M. Strong was elected vice-president, and Dr. Lucius G. Gage, secretary-treasurer.

Dr. Robert L. Carter,

Formerly of Dunbar, Va., is now located at 4017 McColla Avenue, Knoxville, Tenn.

Dr. J. A. Strickland,

Who practiced in Norfolk, Va., for sometime, has located in St. Petersburg, Fla., with offices in the Power and Light Building.

Dr. A. M. Byrd,

Who has been for some time at Richlands, Va., has returned to Bath County, and is located at Mountain Grove, Va.

Medical Missionaries in Foreign Fields.

According to the *Journal of the A. M. A.* we note that there are 1,014 medical missionaries from the United States and the British Empire, there being 460 from Great Britain, forty-eight from Canada, and eight from Australia and New Zealand, while the United States has 498. Most of these are distributed in China, Japan and India.

Dr. Paul Redd

Has returned to his home at Yorktown, Va., after a pleasure trip to Florida.

U. S. Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for technical assistant in sanitary engineering, receipt of applications to close March 27th; and for physiotherapy aide, and

physiotherapy assistant, receipt of applications to close April 17th and May 15th.

Full particulars and application blanks may be obtained from the above named Commission.

Work Schools, Hungary.

Nine work schools for children above twelve, the school-leaving age, have been opened in Budapest and two neighboring townships by the Save the Children Fund. Here the children are taught some gainful occupation and receive small pay for their work. The University and city clinics, the school, and the Government have co-operated in providing medical care, clothing, and teachers.

Children in Institutions, New York.

Of the 27,815 children who, on December 31, 1924, were being cared for in institutions supervised by the New York State Board of Charities, only eight per cent were orphans, according to the bulletin of the board. Nearly half had both parents living.

Hard-of-Hearing Children, Chicago.

Fourteen thousand and four hundred Chicago children have ear disease and 1,000 are sufficiently deaf to need instruction in lip reading, if conditions found in six Chicago schools hold good in the city as a whole. 7,538 children were examined, and of this number 3.6 per cent were suffering from ear disease in some form.

For Sale.

A doctor's home in growing suburban community, one mile north of Alexandria, Virginia, and three miles south of Washington, D. C. Large ten-room house, containing two-room office, spacious lawn and shade and fruit trees. Two-car garage. An ideal location for a doctor. For terms and particulars, address Paul B. Yates (administrator), 810 Mount Vernon Avenue, Potomac, Alexandria, Va. (Adv.)

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At a bargain. Owners offer one Scheidel Western X-ray transformer with control board and one Victor Horizontal Fluoroscopic table. \$275.00 cash gets both. Address Box 34, Lynchburg, Va. (Adv.)

Position Wanted.

Woman experienced in electro-therapeutics. X-ray, laboratory and secretarial work wants position in physician's office. Address No. 463, care this journal. (Adv.)

Obituary .

Dr. Philip Turner Southall,

A prominent physician of Southside Virginia, died at his home in Amelia, Va., February 16th. He was seventy-five years of age and had been in bad health for some time. He was a native of Amelia County and practiced in that county for the greater part of the time after his graduation from Medical College of Virginia in 1873. He had been a member of the Medical Society of Virginia since 1887 and was president of Amelia County Medical Society. He was at one time a member of the Amelia County Board of Health and the Board of Supervisors of that county and was formerly a member of the Board of Directors of Eastern State Hospital at Williamsburg. He is survived by his wife and two daughters.

Dr. Lawrence Ingram,

A well known Richmond physician, died at his home in this city, February 19th, after a brief illness. He was born in Lunenburg County, Va., sixty years ago, and upon completion of his academic education took up medicine, receiving his diploma from Medical College of Virginia in 1886. He had been a member of the Medical Society of Virginia since 1888. Dr. Ingram was president of the Manchester Board of Health and was also adjunct professor of practice of surgery at the former University College of Medicine in this city. His wife and several children survive him.

John Cropper Ayres,

Son of Dr. and Mrs. J. H. Ayres, of Accomac, Va., and member of the class of '26, University of Virginia Medical School, died January 4th, at Trudeau, N. Y. After graduating from Virginia Military Institute with the degree of bachelor of science in 1922, Cropper at once entered the Department of Medicine at University of Virginia, where he proved himself a tireless worker until overtaken by ill health. He was a member of the Phi Delta Theta fraternity, of two medical fraternities, and had received many social honors in his college career.

We can but regret the untimely passing of this popular young man.

Dr. Edward Roland Hart,

Of Suffolk, Va., died January 22nd, at the age of forty-six years. He was born in North Carolina and graduated in medicine from the University of Maryland, Baltimore, in 1901. For some time after this, he practiced in Suffolk, later going to North Carolina and had only just returned to Suffolk shortly before his death. When he lived in Virginia, formerly, he was a member of the Medical Society of Virginia.

Dr. Charles Alexander Pfender,

Prominent roentgenologist of Washington, D. C., died in that city, February 17th. He was forty-eight years of age and graduated from George Washington University Medical School, Washington, D. C., in 1905. At the time of his death he was professor of Roentgenology and Electrotherapeutics in Georgetown University School of Medicine.

Dr. William R. Siron,

For years a practicing physician at McDowell, Va., died at his home at that place, February 17th, at the age of sixty-one years. He had been in failing health for some time. Dr. Siron graduated from the Medical School of the University of Maryland in 1891. His wife and a large family connection survive him.

Dr. James Marvin Prichard,

A graduate of the Eclectic Medical Institute, Cincinnati, in 1874, died at his home at Olinger, Va., January 9th. He was seventy-four years of age.

Dr. Elmer E. Bowman,

Of Mount Jackson, Va., died at his home at that place, January 7th, aged fifty-two years. He graduated in 1900 from University of the South, Medical Department, Sewanee, Tenn.

Dr. George Earl McCorkle,

Of Keysville, Va., died at his home in that place February 21st, after a short illness, aged sixty-one years. He was a native of Iowa, but came to Virginia about fifteen years ago. He graduated in medicine from Rush Medical College, Chicago, in 1888. His wife and several children survive him.

Charles Bernard Pritchett, Jr.,

Son of Dr. and Mrs. C. B. Pritchett, of Danville, Va., died February 18th, as the result of burns received earlier in the day. He was three years of age and the only child.

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